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# THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY  
THE BRICKBUILDER



AUGUST 1917

VOLUME XXVII ~ NUMBER 2

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AN EARLY XVIII CENTURY PALACE IN SALAMANCA, SPAIN

The facade is quite Italian in character and shows no traces of local Spanish treatment. The front is now marred by the enclosing of the top story loggia



# THE ARCHITECTURAL FORUM FOR QUARTER CENTURY THE BRICKBUILDER

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## Catholic Church Architecture

By CHARLES D. MAGINNIS, F.A.I.A.

THE standards of ecclesiastical architecture in America have been for years the object of vivacious criticism. Much of this, though in the main sympathetic,—perhaps because it was sympathetic,—has been harsh criticism. It has not been unjust, but it has occasionally been ungracious. Something may be gained, perhaps, by a straightforward discussion of the principles by which Catholic church art may actually be made better.

That architecture is an art and not merely a mathematical science, is too obvious to need emphasis, and yet, if the Catholic church is to regain its artistic prestige, this must be an active principle. Like literary art, architecture has its canons of taste. They may be more vague to the average perception, but they are perceivable and are entitled to the same measure of consideration. Nevertheless, the most untrained opinion is impatient at the suggestion of authority in matters of architecture. Many who would be timid about a literary judgment will pronounce instant verdict on the design of a cathedral. "I don't know much about architecture, but I know what I like," is familiar hearing. Sometimes modesty speaks in this—usually it is anarchy!

There is instruction in the experience of a professor of architecture who recently judged a group of competitive designs for a Protestant church in a city well known as a musical center. First award was given to a distinguished Gothic design, graceful and reticent, the roof lines delicately terminating in a slender *flèche*, after the French manner. When the decision was proclaimed to the committee, there was a chorus of protest. "I don't perceive the superiority," said one. "Do you mean to tell us," said another, "that this is the best design submitted—this which has no tower, when some of the others have actually two?" And there was much murmuring. "Gentlemen," said the professor, "two towers are not of necessity an artistic merit—they must first be good towers. Those you indicate are,

on the contrary, bad. Sainte-Chapelle, the purest Gothic building in existence, is proof enough that even one may be superfluous." They were still unconvinced. "You need not accept my verdict," continued the professor. "It lies with you finally to decide whether you shall spend \$250,000 for an illiterate piece of architecture which can appeal only to untrained taste. Cultivated opinion is bound to condemn it. Are you so indifferent to such opinion? You have a symphony orchestra in your city which is held in high respect by musical critics throughout the country. The majority of your citizens don't attend its concerts. But is there one of you who is indifferent to its presence? Are not you prouder of your city because of it? Now the same high quality which gives distinction to your musical organization is present in the design I recommend to you. Execute it and you will soon be made conscious that you have a scholarly work of ecclesiastical art in your midst." The principle of authority was perceived and the design was adopted unanimously.

It is clear that, if we are to challenge critical approval of our buildings, we must, instead of interposing merely average taste in the shaping of them, have intellectual standards of architecture. Inferior architecture, moreover, is extravagance. Frequently \$30,000 to six times the sum is spent to provide for a congregation of a thousand people, the physical requirements of divine worship, when less than \$10,000 will provide a habitable covering. Wherefore the generosity? Not for increase of utility, but to secure, as far as the means will admit, a house worthy of its sacred destination. It is desired to have it beautiful and dignified—in other words, artistic. Every cent that is expended beyond \$10,000, then, is expended for art, and for nothing else. If the issue be not art, if the intention be frustrated by ignorant hands, who shall account for the economic waste?

To have art, we must have artists, and by "artists,"—for there is no word more constantly

misapplied — I mean men of unquestioned skill and authority. We must seek the sources of true art production instead of complacently accepting what the highly organized commerce of to-day offers at our doors. For art is not to be had merely by paying for it. To select an architect as one would select a hardware dealer, assuming that one is as good as another, is being simply unintelligent at the critical moment. Neither is it of necessity intelligence to employ him to design a church because he has already designed forty. In the present state of our art it may be quite as safely assumed that he has furnished forty reasons why he should not be entrusted with another. The real test of an architect's ability lies in the judgment of his own profession. If he has gained no eminence there, it is because he has earned none. The belief obtains that the service of those who are thus particularly skilled is expensive service. This ought to be well founded, but it isn't, as the good architect and the bad fare equally. This leads us to the important question of architecture and economics.

Those who are convinced that Catholic church architecture exhibits artistic inferiority, are apt to plead that it is necessitated by the comparative poverty of the Church. It is true the Church is not wealthy nor, for its full beneficence, should it be so. But art may glorify poverty as well as riches. To say that the progress of Christian architecture is hindered by lack of means, is to maintain that there is an essential relation between the value of a work of art and the cost of the material of which it is composed. In one of our leading eastern cities there is a modest little building set almost in the shadow of a grandiose structure representing the expenditure of millions. By the discerning all over the country the humbler one is deemed artistically priceless, the other is execrated. It is not the economic limitation itself, but the abuse of it, which causes mischief. Instead of realizing the truth that a simple brick parish church may be made, in point of architectural quality, better than a cathedral, the financial limitations are supinely accepted as a humiliating and hopeless obstacle. Instead of building modestly when the parish purse is light, more often is it the custom perversely to reach out for pompous types of architecture which cannot be vitalized.

Are not all architects familiar with the Gothic church with the copper clerestory and the wooden pinnacles, in the interior of which the plaster enters into the design not merely as a wall covering, but as a structural material which, springing

jauntily from engaged columns, soars into elaborate vaulting after the manner of old European cathedrals? Yet, of all styles of architecture, the Gothic can least afford to be without structural integrity. And the pity of it is that the expenditure represented in this sort of thing, had it been controlled by good taste, might have given so many examples of good instead of bad architecture. To be really artistic, churches need be neither costly nor elaborate. They should be, on the contrary, more simple, if only they be more thoughtful also. If good art is to be had, the lesson architects must learn from the modest means at their disposal is to make their churches modest, too!

But let us deal with some of the typical problems in the concrete. By discussing, in their order, the buildings of the village church, the town or suburban church, and the city church, we shall develop the chief principles which should govern their design.

*The Village Church.* As a nation we have relatively few villages. We are a gregarious people. Our lesser communities are generally merely big towns in the making. Their life and habit of mind are of the town, for the trolley car is universal, and so is the morning paper, and it is a far corner, indeed, where some subtle influence does not penetrate of the New York of yesterday afternoon. For all this there are many happy communities, by no means remote from cities, which, in the independence of their being and the simplicity of their habit, furnish good reason for some words on the village church. In considering this type only the principles of taste need be discussed.

The best ideal of the village church is derived from our memory of the charming little rustic churches of France and England. And it would assuredly be difficult to imagine a rarer comity between architecture and untrained nature than that exemplified in the little ivy-clad, Gothic churches of some of the English counties. Art could not be less sophisticated. So simple and unconscious are they, so completely are they shorn of the mere ornamenta of Gothic that, were it not for their modest mullioned windows, they could scarcely be classified. Indeed, their charm may almost be said to consist in their independence of mere "style" — in the universal appeal, rather, of their repose and simplicity and their perfect sympathy with their environment.

It is an architectural axiom that the building shall be appropriate not merely to its purpose, but to its surroundings. A structure which may be admirable in the city may not be at all admirable in the country. Why is this? In the city, by



reason of its life, the physical conditions are formal and conventional. Nature is pushed outside the big boundaries. It may not dictate the aspect of things. When there is need that it be engaged it, too, must be formalized. There the trees appear in flanking geometrical lines up the boulevards, the shrubs are pruned and persuaded to mathematical precision, and the grass in the public places is squared, circled, crescented, and octagonized into conventional subordination. Art, not nature, is in control. In the village, however, nature is at the doors. Art, then, becomes the servant, for architecture can furnish forth nothing so beautiful as a rolling green sward and a group of noble trees.

The village church, then, must be picturesque — it owes that to its environment. Who does not know of instances of the selfishness which builds with no thought of what is due to the locality, to the serious injury of a beautiful neighborhood, and the outrage of local patriotism? It should be built, if possible, from materials of the locality. If field stone is to be had, nothing could be better. The ivy will cling to it, and surely there is lovely symbolism in such contact. But even wood may serve, and serve admirably, if it be cased with the shingle, for the clapboard is an abomination! Shingled walls with gables of half-timber and cement may be made an attractive combination of materials. The nature of the structure should be primitively simple. There should be no aping of the forms of ambitious architecture. Such effort is most inartistic and the effect invariably distressing. In the design of the village church nothing could be in worse taste than the introduction of the meaningless pointed vaultings of lath and gaudily tinted plaster. How much finer is the sentiment of that roof whose honest beams reveal their sturdy purpose! It is a sentiment of which there is regrettably too little in our minor Catholic buildings. Indeed, it is usual to associate the naive type of village church with Protestantism — why, I have never been able to understand, for France and Ireland have thousands of such.

*The Town or Suburban Church.* We come now to what may be considered the most typical architectural problem — how to build fittingly for a congregation of a thousand people. Obviously, we must confine ourselves in its discussion to general conditions, since the problem is susceptible of many solutions, depending on the immediate conditions of site, environment, climate, and natural resource.

The first consideration is the plan. The plan

of Catholic parish churches is usually of the basilican type — that is, a longitudinal division into nave and side aisles by means of two rows of columns which occasionally support a clerestory. There is considerable difference of opinion as to the actual adaptability of such organism to our American conditions. What are these conditions? Catholic congregations assemble to the full capacity of the church at given times. The people are assigned to fixed pews. Mass is celebrated at the central altar and a sermon is preached from a point proximate to it. There are here two principles which call for recognition, — the optical and the aural. Now if these, and these only, are the principles to take account of in the shaping of the church, — that all should see and all should hear, — then many additional traditions may be thrown overboard. What is the logic, then, of these principles? All obstructions in the shape of columns and piers are gratuitous inflictions. The sloping floor is vindicated and, with it, the "chunky" auditorium with its theatrical curving seats. An architect once boasted to me of such a solution of the church problem and was not in the least disturbed when it was pointed out to him how much it resembled an opera house. For he had introduced sloping horseshoe galleries that the congregation might be fully *en rapport* with the preacher. Optically and acoustically, this was commendable; but the inclination given to the bodies of the worshipers who occupied the sides of the galleries must have caused them to question whether, after all, there was not some principle which he had somehow overlooked. And, of course, there was — the point of view was simply not Catholic. Worship of God at the altar had been forgotten. This principle is the fundamental one in its demand on the architecture. The lines of the interior must contrive to secure a befitting aspect of solemnity — an atmosphere which shall stimulate religious emotion. The idea of the temple should prevail over every other. These several principles may, however, be reconciled. Indeed, they are not unsatisfactorily reconciled even in the basilican type. If the seating is properly contrived, there is no reason why the presence of the columns should be considered as a serious optical disadvantage. I realize they are often held to be so, as we frequently see them built so thin as to give the entire construction a flimsy and unstable appearance. This is merely to beg a question which presents no great difficulty.

A modification of the basilica offers a solution by which the impressive perspective of the tradi-

tional church may be retained and the congregation fully embraced within the lines of support. This consists simply in placing the two rows of columns within 5 feet or so of the outer walls. The side aisles would then be used solely as passages. Without transepts, however, such a scheme as this is adaptable only for a seating capacity of not more than 800. For when the width of the sitting area between the rows of columns is not definitely restricted, the distance between the side and center aisle otherwise makes for pews of such length that the assembling of the congregation in their seats is attended by considerable confusion. Unless five aisles are provided, which, economically is out of the question, the effective width of the sitting area, including the center aisle, is at the utmost 45 feet, allowing even as many as seven sittings in a given pew.

To accommodate more than 800 on such a system of plan would mean a church immoderately long so that people in the rear would be greatly at a disadvantage. The idea of the transept occurs. Now transepts of historic type are expensive architectural features, especially when considered relatively with the limited number of effective sittings they permit. Here, however, they apply admirably. By making them comparatively shallow, so that they each accommodate only a single bank of pews from which every seat commands a view of the altar, the direct communication with a single aisle makes for the utmost economy. There is no need, moreover, for expressing these transepts externally with loftiness and proportionate expense. They may be carried up to the height of the aisle roof only, or terminated by gables whose bases are related to that level.

A few words should be said concerning the sanctuary. This is generally given too slight an emphasis on the plan, being often little more than a large recess. A deep chancel contributes so sensibly, so definitely, to the devotional effect of the church that it is impossible to contrive any appreciable measure of such effect without it. In this interest the edict of Pope Pius X on the subject of church music is most fortunate. Already its effect is to be noted in the more dignified sanctuaries of some of our recent churches, and their provision for choirs. Besides being marked by greater depth, the chancel, as to its floor, is given more elevation.

In the growing regard for rubrical tradition there is a noticeable feeling for the proper placing of the baptistery. The baptismal font was treated but recently merely as a necessary piece of church furniture, and placed where there happened to

be room for it. It is gradually, however, coming into its sacramental importance in the plan of the church. Rubrically, the baptistery belongs on the Gospel side, near the entrance, to symbolize the beginning of the Christian life. It should, if possible, be a distinct apartment which can be artificially heated. Where baptisms are administered only at such times as the church itself is heated, a grille or open screen may serve to enclose it.

So much for the principles of the plan. We turn now to its artistic expression. A given plan is susceptible of being expressed exteriorly by at least as many different aspects as there are styles of architecture. Of course, to any one who thinks a little about the matter it is anomalous, to the last degree, that we should have to deal with "styles of architecture" at all. To appreciate what a style of architecture ought to mean, we have only to remember that such a system as Gothic was the growth of centuries. Generation after generation was born and passed away and men still looked out on a Gothic world. Not only was the church in which they worshiped a Gothic church, but their dwellings were Gothic and their town halls and their markets. Gothic was as familiar as the oaks which grew in the fields. Children absorbed the spirit of it with their alphabet. To Gothic designers their style was at once a living language and an inherited vernacular. Without a mass of tradition in living language, the Cathedral of Amiens, for instance, could never have existed, for no single intelligence could have conceived it. Such was the evolution of every historic style and, as such, it expressed the genius of the civilization in which it developed.

What, then, is meant here in America by the jumble and conflict of styles which are not of us? Have we no language of our own? We seldom ask ourselves the question. Even architects have grown so familiar with the conditions as to lose sight of the anomaly and deal with styles with the caprice of milliners. It all means that, since the invention of steam and electricity, our horizon has been swiftly widening, until now, at breakfast of a morning, we know and are interested in what all the world did yesterday. National and racial identities are growing more and more indefinite. There is a constant mingling of peoples. Europe and America are a network of railways and the airships are already in the sky. It means, moreover, that the photographic camera has placed at every architect's elbow the pictorial record of all the artistic and inartistic periods from Assyria to Oklahoma. So it is that the art of the time is intensely self-conscious and, of necessity, eclectic.



Our architecture for years to come must continue to be reminiscent. Each style will make its own peculiar appeal, for we must remember we have to deal with a variety of racial temperaments. No one architectural system, however intellectually satisfying, may hope to reconcile such variances, nor will a national style of architecture develop in this country until we are one coherent race, probably not even then. Meantime, social types and architectural types are in the crucible together. In these conditions how may we make intelligent selections?

For the Catholic parish church in America some few historic styles possess unusual adaptability to the materials which we can afford to use. We commonly build in brick to which two of the most admirable styles of Christian architecture graciously lend themselves. I refer to the Gothic and the Italian Byzantine. I do not mean to imply that the Gothic church when rendered in stone is not nobler; much less that a given Gothic design may be reasonably rendered in either material. I mean that, by skilful design, the simpler charms of the style may be caught and held in the brick wall as well as in the stone. There is considerable misunderstanding of the Gothic in this connection, many believing it to be necessarily an expensive style of architecture. This is a mistake which comes of thinking of Gothic as depending for its interest on pinnacles and crockets and elaborate traceries and generally exuberant form. As a matter of fact, it is the most flexible of styles, lending itself to most modest expressions. England abounds with excellent precedents in this kind. And in northern Italy there are remains of a Gothic brick architecture which is full of admirable suggestion for our work here in America. As to the claim which the Gothic style in the abstract makes on our consideration, it need only be said that no other system of architecture ever approached it in the felicity with which, in its full development, it interpreted the genius of the Catholic religion. Since this is true, it is a tradition which ought to be jealously fostered and continued.

The Italian Byzantine connotes a style which is singularly adaptable to the conditions of the American parish. Classic in spirit, it retains much of the stateliness and dignity of the ancient Greek architecture, while it escapes its pagan baldness of sentiment. Indeed, it is essentially a style of color and rich symbolism, as the interior of Monreale Cathedral in Sicily and the churches of Ravenna testify. Its round arch admits of spanning larger spaces than the pointed arch of

the Gothic and, by virtue of this alone, appeals to the favor of many who are temperamentally opposed to the medieval type. In this connection it is interesting to note that the old Celtic ornament may readily be carried into harmonious association with the Byzantine. Bearing upon the practical adaptability of the style to our uses, I may add that its employment may be reconciled with severe economy.

Though these two styles, the Gothic and the Italian Byzantine, have superficially very different characteristics, such features as the clerestory and the tower enter, with both, into the design of the church. A few words may be said of these familiar features. Whether in one style or another, the clerestory must be of masonry; constructed of anything else it becomes a flimsy and meaningless pomposity. There is no feature of our architecture so severely and so properly criticized as this. We should highly resolve to leave the clerestory utterly out of our building if we grudge the money to make it what it ought to be. And it is not artistically indispensable after all. There are extant, in both styles, admirable churches without an inch of clerestory. In the larger type of building we have been discussing, however, either a tower or a clerestory will generally be found necessary to give the structure its churchly individuality. The degree in which the tower may contribute to the impressive effect of the church depends much upon its placing. Commonly, in the Gothic building, it is made to develop out of one side of the façade, but this, unless skilfully managed, results in an uneasy skyline. The Italian method by which the tower is set back toward the chancel is better, as, by this means, perfect symmetry is imparted to the façade and a more interesting perspective to the building. To adopt this arrangement to the Gothic calls for ingenious modification, however, without which the effect might be seriously prejudiced. A very effective expedient is the placing of the tower directly over the chancel, for which, by the by, there is ancient Gothic precedent. Though the proportions of the average chancel, when resolved into the square plan, make for a tower so placed a more than commonly big diameter, this is offset economically by the fact that, for effective height, it needs comparatively little beyond the normal elevation of the sanctuary walls themselves.

*The City Church.* Conditions in our larger American cities are developing an architectural problem which calls for independent solution — the church in the congested district. Instinctively search is made for the corner lot, but the

corner lot in most communities is apt to carry a shrewd price. The church is thus often compelled to be built within the block. The planning of the building in these circumstances, so as to secure good lighting, would be comparatively a simple matter were we dealing with a single auditorium. In this case the aisle walls might be quite solid and placed even on the party line, provided only the clerestory were properly designed for the admission of light. But the problem becomes complicated by a need peculiar to our American cities — the lower or basement church. In the interest of this, the floor of the upper auditorium must be elevated considerably above the street level and, occasionally, areas provided on the sides. This basement church, with its clutter of columns, is generally utilitarian to the last degree, as if the architect had despaired of getting any dignity into it and had relinquished the attempt. With our modern methods of construction there is no reason why architectural distinction may not be given to this portion of the building. By the use of the steel beam no more supports are needed than exist upstairs. And if the terra-cotta tile vault be substituted for the steel beam, there is the increased advantage of a ceiling quite free of the horizontal line.

It is not improbable that the conditions in New York and some others of our very congested cities may eventually lead to such a plan for the city church as will remove it back from the line of the street in the interest of the comprehensive development of the parish property. It is conceivable that the pastor of a "working church" might weigh against the advantage of a façade on the street line not merely its expense, which is considerable, but the high value of a street frontage which might be put to definite economic advantage. One could imagine the rectory, for instance, occupying this position, or parish halls,

after due architectural importance has been given to the approaches to the church. Such an organism as this would be quite susceptible of dignified and appropriate expression.

The church tower in certain districts of the American city has ceased to justify itself. Our civic architecture — thanks to the elevator and the genius of steel — is becoming more and more vertical, so that even the latest apartment house may prove far too lofty a challenge. We would seek long for a more amusing instance of the inadequacy of the ecclesiastical steeple than that afforded by Trinity in lower Broadway, New York, as viewed from the river. Even St. Patrick's, the proudest temple of American Catholics, is year by year surrendering its influence over the skyline of Manhattan. A tower is designed to be a dominating accent; when it cannot dominate, it is a pathetic thing, symbolizing nothing effectively but defeat and failure.

It is enough if the discussion of these various problems has shown how necessary it is that fresh thought be brought to their consideration. The number of architects is sensibly increasing who have the skill and the artistic conscience for real accomplishment and, no less happily, there are growing evidences of distinguished interest and co-operation in the hierarchy and the clergy. The principle cannot be escaped that the artistic position of the Catholic church is absolutely a matter of its own election. Art must be had, whether it be good or bad, for art is the very breath of Catholic life. The Catholic imagination is vindicated or compromised by the aspect of even the humblest of Catholic structures. And this being so, we may well hope that the Church will finally perceive the value in this material age of such an architecture as will symbolize in a thoughtful, scholarly, and therefore beautiful way the sacred traditions and mysteries of Catholic faith.

Notre Dame  
Academy and Convent  
From the Fenway  
Boston, Mass.



Maginnis & Walsh  
Architects



## The Motion Picture Theater

### III. CONSTRUCTION OF BOOTH AND ORGAN CHAMBER

By CHARLES A. WHITTEMORE

A DISCUSSION of motion picture theaters would not be complete if confined to the limits of structural elements and sight-line layouts. There are several very important considerations which operate in making the investment a success or a failure after the building has been constructed, even along ideal lines.

The heart of the motion picture theater is, of course, in the booth, and unless this be properly constructed and arranged and equipped with the right type of machines, the success of the theater is seriously jeopardized.

In order to give a comprehensive idea of the requirements in this respect, a detailed analysis of the motion picture booth construction and equipment will be well worth while; but for the sake of confining the analysis to the most general type of booth, the three-machine booth will be the only one considered.

The difference between the three-machine booth and the two-machine booth lies solely, as may be readily judged, in the number of machines installed. A two-machine booth has one motion picture projector and one stereopticon, while a three-machine equipment includes an additional motion picture projector. Some booths have only a single motion picture machine with an adjustable "head," which may be released and pushed to one side and a stereopticon head adjusted on the same bed plate in front of the arc light aperture. This is the simplest type of booth and is used only in small or country theaters. The standard equipment for those of large seating capacity where picture projection is carried on in a large way is two motion picture machines and a stereopticon. The machines are arranged side by side with space allowed between them for the operator to occupy during the run of the film.

In many states the dimensions of these booths are fixed by law. A three-machine booth must be not less than 8 feet from front to back and 12 feet wide by 7 feet high. Fig. 1 shows the plan of such a booth, and Fig. 2 shows the inside elevation of the front wall toward the auditorium, indicating the openings for the various machines.

These machines, as have been previously noted, are connected by a lever arm which controls their shutters so that when one machine is in operation the light shutter is closed on the adjoining machine, and when the end of the film is reached, if

the picture on the adjoining film is a continuation of that just previously projected, a single movement of this lever will close the shutter and open the one on the second machine, allowing the projection of the picture to continue with scarcely a break in continuity. This feature saves time not only on the part of the operator and the public, but also for the manager of the theater. Many patrons of the "movies" have noticed the terrific speed of objects moving in the picture. Sometimes, as in the case of motor cars, etc., the speed is not forced. Frequently, however, it is due to the fact that the operator, in order to hasten the program, accelerates the projection and the action in the picture is far more rapid than the actual speed at which the picture was taken. When business is "coming good," the films are frequently "speeded up" so as to get one additional performance if possible during the play hours.

There are two types of machines in common use: one, the hand driven type and the other the motor driven. The hand driven type, as its name implies, is operated entirely by hand, and the operator must continuously turn a wheel which is geared in such a manner as to operate the machine at the proper rate of speed. This necessitates continual attention on his part and in case of any accident in the booth means that the operator cannot leave his machine without seriously interfering with the picture. It is almost impossible except for well experienced operators to use a hand machine and get the best results. Variations in the speed of turning are quickly shown on the screen and the picture becomes "jerky" and lacks precision of motion. The motor driven machine obviously overcomes this defect. As a result this type of machine is being rapidly displaced in all except the small, out-of-town theaters.

The law requires that operators shall be near the machines at all times. With a hand machine this is compulsory, but where a motor drive is used the operator may leave his machine to attend to other duties in the machine room without in the least affecting the picture. In many states it is also required that a licensed operator and an assistant shall be in the booth during all of the performance.

In addition to the machines each booth is equipped with a bench which is called a "rewind"

bench, where films are rewound after being taken from the machine. There are two magazines for each machine — one above the lens and one below the bed plate. The upper magazine holds the film to be projected and from this the film is "threaded" through the "spockets," "take up," "film gate," etc., to the lower magazine. During the process of projection the film unwinds from the upper magazine and winds on a spindle or reel in the lower. This causes the reversal of the film and necessitates the "rewind." The

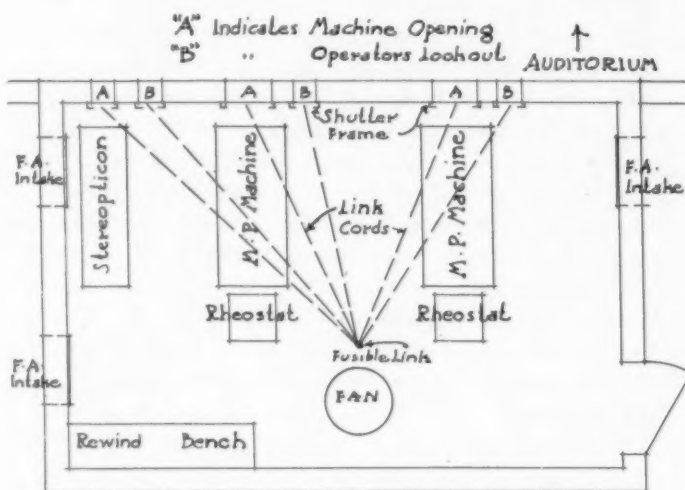


Fig. 1. Floor Plan of Motion Picture Booth

films when received at the theater are right side out, that is, they may be threaded into the machine and projection started immediately; but in the more common type of machines the films, after being "run through," are reversed so that the last portion of the film is on the outside. Consequently before the films can be returned to the leasing agent or projected again they must be rewound and for this purpose, as well as for general repair work, the bench is installed.

There is a type of machine on the market, however, which has attained more or less success, which winds the film right side out, that is, the winding is done from the center of the reel so that after the picture has been run through the machine it is in position to be projected without rewinding.

The machines of the motion picture booth are continually the subject of study to the end that improvements may be made not only in the mechanical part of the machine itself, but also in the clearness of the picture, the automatic focusing, and film threading and shutter devices. The arc light which is the source of light in all of the electric projection machines has also been very carefully investigated, and instead of the old angular arc where the two carbons were set at an angle of

possibly 120 degrees, a new lamp has been perfected in which one carbon is vertical and the other horizontal. The claim is made that this produces an intense light of greater candle power at a lower operating cost than any other form.

The operating cost is one of the principal items that enters into the administration of a motion picture theater, and anything which can be done to reduce this factor tends toward a greater value from the investment standpoint.

The source of light in all of the modern houses is, of course, electrical energy, and in many of the large cities this takes the form of what is called direct current, while in suburban theaters and in more remote districts the current is alternating. There is a radical difference between the effect of these two kinds of current in producing an arc for motion picture projection, and wherever alternating current is found it is necessary to use some device to change it into direct current before being delivered to the carbons.

The two principal ways for accomplishing this are by means of transformers and motor generator sets. In the first the transformer may be of the same general type as other electrical transformers, and is sometimes called a rectifier or transformer.

The motor generator set, as its name implies, is really a unit in which the motor is run by alternating current and operates a generator delivering direct current. These machines are very simple in construction, need few repairs, and are relatively inexpensive to maintain.

On account of the electric arc used in the projection machine and the motors used to drive the machines, the temperature of the machine booth has a tendency to be excessively high, and for this reason the ventilation must be carefully considered.

The regulations usually require a definite size of fan for a definite quantity of air removed per minute, as well as a definite amount of fresh air inlet. The ventilating apparatus, in addition to maintaining livable conditions in the booth, also serves the purpose, in case of fire, of operating to remove the smoke and gases from the booth directly out of doors so that a film might be entirely consumed without the audience being alarmed.

The ventilation system should be connected directly to the outer air both for the supply and for the exhaust, and the latter should be placed at the ceiling, while the supply openings should be as close to the floor as possible. This is contrary to some theories of ventilation, but has been



demonstrated repeatedly to be the correct method for location of the various elements of the ventilation system for a booth.

A separate duct system with openings over each machine should also be installed to take the excess heat and gases from the arc light itself. This may be connected beyond the fan into the main vent duct from the booth, but in such a manner as to prevent a reverse current of air blowing on the arc.

The apertures through which the projection is thrown and through which the operators watch the pictures are required to be covered with glass. This is to prevent smoke in the booth from being communicated to the auditorium with the attendant possibility of a panic. Consequently the booth which has all apertures closed in this manner must have a greater supply of fresh air brought in near the floor and as close to the front of the machines as possible in order to make up for what ventilation might be obtained were the apertures left open. The apertures are also protected by automatic shutters which, as in the case of the glass, serve as an additional fire protection. The shutters are made of metal or asbestos board edged with metal and arranged to slide in a metal groove. To the top of each shutter is attached an eyelet which in turn is connected by a piece of cord to a fusible link. All the cords from the shutter are brought to a central point in the booth and there fastened to a single link, one end of which is held by a hook. In case of fire the link would melt, releasing the cords, and the shutters would close. The link may also be lifted from the hook by hand and the shutters dropped in place. Fig. 1 and Fig. 2 show this arrangement of shutters and control cords.

The general construction of a booth in a second class building is of steel and asbestos. The authorities have standardized requirements for such installations. The asbestos is bolted to the steel framework of walls, floor, and ceiling, while the outside finish on the auditorium side may be at the option of the owner.

In a first class building the booth may be constructed of fireproof material with asbestos and steel omitted. At times the demands of the authorities in regard to booth construction have seemed exceedingly rigorous; but in view of the fact that practically the only source of danger is in the booth, the demands cannot be considered excessive if they tend toward increased safety of the patrons. Quite recently a fire occurred in a well protected booth and over 8000 feet of film burned without the audience realizing that any

accident had occurred. Compare this with the numerous fires and panics in the earlier days of motion picture theaters and the relative value of the new type of booth construction is easily established.

The control of the lighting of the house is another problem which confronts every motion picture theater manager and it has been solved in a variety of ways. If the theater be one in which a complete stage and full equipment is installed with a regulation stage switchboard, the problem is a little more difficult than in the case of a picture house with a small stage devoted exclusively to pictures or songs. The fully equipped theater, when operating vaudeville sketches or acts of any character, must retain the control of the house lighting at the stage board. The ceiling lights, wall brackets, etc., must be arranged so that they may be dimmed, put out, or let on at just the proper time in connection with the act. The picture operator, on the other hand, must have under his control the lighting of the house so that if an accident should happen to the film while the house is dark, he can immediately throw on all lights and thus eliminate the possibility of trouble.

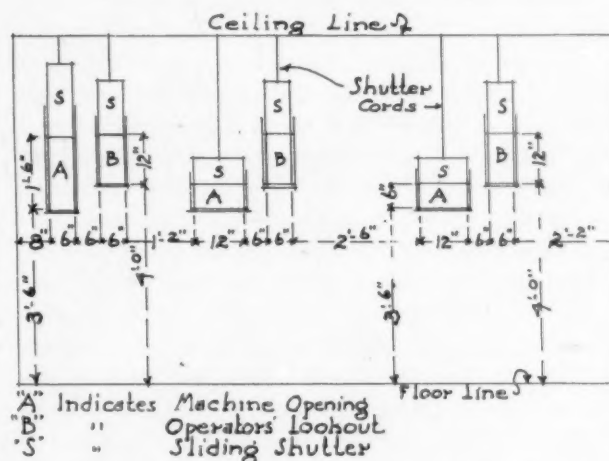


Fig. 2. Inside Elevation of Wall in Motion Picture Booth toward Auditorium

The problem, therefore, is to give instantaneous and complete control of the lighting of the house from two points, and the solution of the problem varies in different theaters. Some managers prefer to have the main switches and the dimmers on the house lights located at or near the booth, while others prefer to have them located on the stage switchboard.

In order to obtain the control from two separate points, the type of switch known as the "solenoid" must be adopted. In this case a push button on the stage switchboard and a push button in the

booth can be arranged to operate the same circuit without possibility of interference.

The emergency lighting of a theater, that is, the lighting of stairs, lobby, and corridors, and a few lights throughout the house, must also be controlled from the booth and the stage switchboard.

Illumination, furthermore, bears an important relation to the success of picture projection. When motion pictures were originally produced, the thought prevailed that the house must be absolutely dark or else the picture would be ineffective. But this idea has long since passed away and the ideally lighted motion picture house to-day is one in which the audience, at any time, can see sufficiently well to read a program and at the same time be able to see a perfectly clear, distinct picture. To accomplish this the placing of the lighting outlets is of first importance. No light rays from illuminating sources should be allowed to cross the zone of light from the picture machine nor to shine directly on the screen.

In some theaters the system of concealed lighting is used, but this is relatively expensive, not only through first cost, but from the standpoint of maintenance. Other theaters use indirect lights from which the illumination is reflected on to the ceiling or other reflecting surface and is diffused throughout the auditorium. This is a very effective mode of lighting. Others have used the direct system with wall brackets and ceiling fixtures and these, if so arranged and constructed that the direct rays of light do not shine on the picture screen or in the eyes of the audience, produce excellent results.

In every case, however, the system of lighting known as "ushers' lights" must be maintained so as to light satisfactorily all of the aisles throughout. It is also desirable that the illumination should be sufficiently clear so that the ushers may readily see the audience or check up the unoccupied seats. It is also very important that the aisles where steppings occur should be sufficiently well lighted to preclude the possibility of tripping or stumbling by any of the patrons.

One of the most effective ways of accomplishing this result is to have at definite points in the aisles standard reflectors which will throw the light directly on the steps, but not in the eyes of persons walking up the aisles. And in connection with this point it may be well to suggest painting the risers white or some light tone, as this differentiates them from the treads even in semi-darkness.

In controlling the lighting system the ushers' lights are always maintained on the emergency service, so that whenever the stairs, corridors, etc.,

are lighted and permit of egress for the audience, the ushers' lights are also illuminated so as to light all of the aisles and passages leading to the stairs, enabling people to leave the auditorium without difficulty. This emergency service should be a double system controlled by a double throw switch which is fed, if possible, from two separate and distinct sources, — from a private plant and a local lighting company or from the local lighting company's mains on two different sub-lines. The object of this is, that in case the service from one plant should fail the double throw switch may immediately be reversed and the other service employed, maintaining the illumination as before.

This emergency service is frequently connected by means of remote control switches in different parts of the house, as, for instance, at the rear of the orchestra floor and the rear of the balcony, in the ticket booth, and from one switch located near the ticket taker. Such an arrangement would immediately permit the operation of the double throw from any of these points in the house in case of defective service.

The stage lighting is relatively the same as in a theater that is fully equipped, although where there is only a small stage devoted exclusively to pictures, the light consists only of the proscenium strips, the footlights, and an overhead source. These lights sufficiently illuminate the stage so as to make it attractive when the audience is assembling for the performance and also at the end of the performance when the general house lights are thrown on. Dimmers on the proscenium strips and the footlights are valuable although not necessary. The effect is much more pleasant if the lights are gradually dimmed than if they are cut off suddenly.

Another feature of considerable importance, which helps materially to make or mar the picture, is the surface on which the picture is projected, called the "screen." In a house equipped entirely for motion pictures, this screen is simpler of construction than in a theater where full performances are given. In the former case the screen is usually located a short distance from the face of the proscenium and is on the back wall of the stage, the stage being approximately 15 feet deep. In the latter case the stage is usually 32 to 40 feet deep, which precludes the possibility of using the back wall as the reflecting surface, and consequently the screen must be hung from the grid-iron at a fixed distance from the curtain line and arranged for readily raising or lowering.

In the theater which is distinctly devoted to motion pictures the screen is usually one of two



types—either a particularly hard, smooth plastered surface or a specially constructed screen applied directly to the wall. This latter type includes what is known as the "gold fiber" screen and the "deformed" screen. The gold fiber screen has metallic fibers woven into the cloth and is mounted on a strong frame with the material stretched very tightly to eliminate the possibility of wrinkles and is usually painted with aluminum paint. This forms a very pleasing reflecting surface and gives good color value to the picture, and in this respect is even better than the plastered wall unless the plastered surface is painted in similar manner. The "deformed" screen is a special screen designed for theaters where the width is unusually great and is made of a hard reflecting material in the form of a wide radius curve. The theory involved is that the people on the extreme sides of the house and well toward the front would on a flat screen have a very distorted picture, while on a screen of this character the picture is normal from all points of view.

In some of the fully equipped stages the screen is made of rigid material, such as plaster on metal lath in a strong frame, while in others it is frequently of a woven cloth. This latter construction is not quite so desirable unless the material is stretched tightly on a rigid form, because of air currents on the stage, which would produce motion and mar the effect of the picture.

In the last few years a new element has entered into theater construction which demands careful consideration, as well as some of the points which have previously been discussed, and this element is the pipe organ. Very few theaters are now constructed without an organ of some character. The music seems to appeal to the patrons far more than the music of an orchestra, except in the case of very large theaters.

These organs are of two types: one is the regular church organ type to which may be added the accessories, such as drums, whistles, etc.; and the other is the type embodying pipe organ features and also containing a piano, so that the shift can be immediately made from organ to piano music without the operator leaving the bench.

The second type is usually a unit complete in itself, which may be installed directly in the orchestra pit. The principal consideration in connection with this installation is that the depth of the orchestra pit shall be so arranged that the top of the organ itself shall not project above the stage and also that the distance of the organ from the front of the stage shall be such that the player can continually see the picture without undue exertion.

With the pipe organ the conditions are entirely different. This installation necessitates the construction of a special room or chamber in which the pipes, wind chests, etc., may be placed. The console or key desk is placed in the orchestra pit in such a position that the organist may watch the picture at all times, and the connection between the console and the wind chests is made by means of an electric cable. The organ chamber should be carefully constructed and insulated against wide variations in temperature and so arranged that the sound will not be dissipated through portions of the building where it is not desired.

The best type of construction for an organ chamber, where the structural walls are of terra cotta blocks or similar construction, is to apply a  $\frac{1}{8}$ -inch furring strip and over this a layer of deafening quilt or insulating material, which has been demonstrated by tests to possess real value, and outside of this again a layer of  $\frac{7}{8}$ -inch pine sheathing. This same construction applies to the walls and floors and also to the roof, but with the further addition of a two-ply layer of waterproof roofing paper to prevent the possibility of any water leaking in from above.

If the construction is of wood studs, the deafening quilt should be applied to them, and inside of the deafening quilt another row of studs should be erected, but not attached to the regular wall construction in any way. Then on the face of these studs the sheathing should be applied. This will create a condition which will prevent the sound escaping in any direction except through the natural opening provided for this purpose.

These openings always face the auditorium or the stage and under such conditions are usually made more or less decorative in treatment. To secure the best results the opening should be covered with a very fine wire mesh or else a very coarse cotton cloth tacked securely to the finished work of the openings and painted as may be desired in accordance with the color scheme of the auditorium. This serves not only as a protection from the larger particles of dust, etc., but also prevents the possibility of the audience looking into the organ chamber where the mechanism is not particularly attractive.

It is difficult to say what new features may be added to the development of the motion picture in the next few years, but certainly the introduction of the organ in connection with the picture program has done much to arouse a universal interest among the class of people who are not fascinated by the "thrillers," and to raise the tone of the programs by this very fact.



VIEW LOOKING NORTH ON EAST AVENUE



GROUP OF HOUSES ON EAST AVENUE

TWO VIEWS OF REMINGTON HOUSING DEVELOPMENT AT BRIDGEPORT, CONN.



## • The Housing of Employees

By ALFRED C. BOSSOM

**A**S early as 1695 John Bellers, a prominent Quaker, published a pamphlet in London entitled, "Proposals and Husbandry, with Profit for the Rich and Plentiful Living for the Poor, and a Good Education for Youth, which will be an Advantage to the Government by the Increase of the People and their Riches." This old idea has long since passed the experimental stage and is now recognized as an economic, for it is the domestic life and not the factory life that gives the character to a country.

It is a fact that in the same ratio as the power of the great nations of the past developed, so the homes of the poor became more and more unsatisfactory. In the great Reformation movement the houses of the rich took on vast improvements, but the dwellings of the workers became more unhygienic than the huts of the primitive uncivilized tribes.

Considerable agitation and a number of laws were passed in England in the latter half of the last century; but when a royal commission sat to investigate conditions, it was proven that laws alone would not help the habitations of workers, and this same condition prevails to-day. It is the duty of those responsible for the well being of employees to make every effort to raise the standard of living to a level commensurate with the power and wealth of the nation.

Those great purifiers, light and air, which are provided in unlimited quantities, will do untold work unless the perverse ingenuity of man imposes some almost insurmountable obstacle. It is possible for all humans to benefit from ample light and air in their places of work, rest, or play if they are only taught their value.

Profit sharing also has gone beyond the experimental stage and in some form or another is in active operation in many of the large labor employing concerns. Where this sharing takes the form of giving the employee the opportunity of securing a suitable home in a desirable location at a reasonable price, it immediately reacts to the benefit of the employer in promoting greater efficiency among those employed.

In addition to the home with its light and air, two great wants in the lives of wage earners are space and beauty, and these give such tremendous returns in relation to their cost that it is hard to comprehend why they so seldom exist.

In fairness it must be said that all employees do

not live under conditions that are unsatisfactory, but as the great majority of large manufacturing centers have grown up around factories at the instance of the speculator, and without regard to important economic requirements, the percentage whose living conditions are good is exceedingly small. Even in the few instances where ideal conditions may be said to exist, it can readily be shown that at least one family in ten is overcrowded. No manufacturer who is endeavoring to produce the best possible results would consider allowing the operatives to work in badly lighted, unsanitary, or avoidable unsatisfactory conditions, irrespective of compulsory legal requirements to do otherwise. The average working day is eight hours and during the remaining sixteen the worker is often compelled by circumstances that could easily be remedied to live under conditions that tend to place his working efficiency at the lowest possible level. New comers in any section if they are going to be assimilated must be brought up to the desired standard during the sixteen hours outside the shop. A new operative obtaining employment in a new location is compelled to take any accommodation available, and if this is bad he will remove quickly, causing loss to himself and to the employer, or correspondingly lower the standard.

A man not getting refreshing sleep, worrying about his home affairs, or compelled to pass the greater portion of his time amid long, monotonous rows of dreary shacks — without a blade of grass or a green tree, and often where even paint is a thing of long ago — cannot be expected to have initiative or be able to produce the same result as a man not so handicapped, aside from the injurious mental, moral, and health effects.

Utopia is not to be found nor is the millennium to be suddenly produced; but it is within the power of almost all large employers of labor, and with benefit to themselves, to look into the way their people are living the two-thirds of their lives spent outside the workshop. We conserve our coal and forests, in fact all natural resources, and yet hardly any effort is made to conserve the health and mentality of the great majority of the human population.

Better conditions have been promoted in office, loft, and factory buildings than in small residences, for in the former the profit earned from the workers makes it possible for the speculator to receive

a larger return in rent; but in domestic buildings the alcove room without a window is still a favorite with the speculator, and that fire-trap, the "three-decker" tenement house, has outlived its former contemporary, the wooden workroom, by many years.

While the employee is directly under the observation of the employer, he is looked after as carefully as a machine is studied to produce the most satisfactory output. Experience and constructive thought are now teaching that this human being must be also studied and aided during that part of the day when he is not occupied by his work. Satisfactory homes amid desirable surroundings, if unobtainable otherwise, can be provided advantageously by the employer. When this is accomplished, every inducement should be undertaken to make the occupants take pride in their community and get the most benefit from the investment made on their behalf.

Co-operation of this type leads to a more satisfactory understanding between employer and

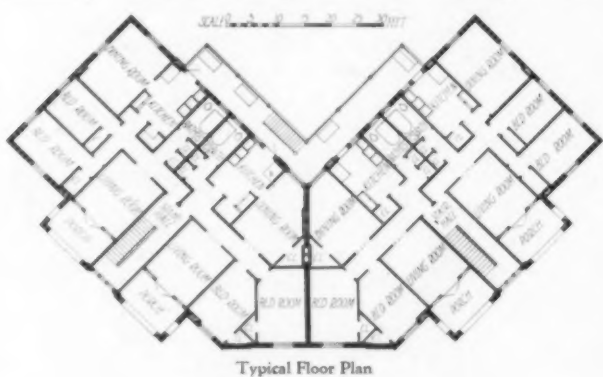
employee, which makes strikes or lockouts less likely and creates a state of mutual interest. The employer is comparatively assured of a permanent, dependable nucleus of labor in rush times, and the employee is correspondingly assured of a uniform low rent for the best accommodation it is possible to obtain.

*Various Methods of Providing Accommodation.* The phenomenal growth of industries has in many cases entirely outstripped the normal growth of towns, so that in many places there has arisen the immediate necessity of providing employees dwellings.

In Europe where the building of many workers' communities has been undertaken, the process has been one of gradual development following the growth of the industries, during which period many unforeseen conditions developed necessitating amendments to the scheme instead of following out a fully considered plan from beginning to end, so that foreign experience is of great advantage to America as practically every contingency has been demonstrated and can now be provided for in advance. It formerly seemed an unwritten rule that workers had to be packed side by side in suburban locations, and one on top of the other, without regard to other consideration, but this is now changing.

The actual housing of employees may be accomplished by several methods, such as the use of some old property through renovation and modeling; by individual one and two family houses; by the one family house in rows, not detached; three-story houses with one family over the other, accommodating as many families as the size of the house and the number of units joined together permit, and the latest type of tenement house. These with their various modifications and special buildings—such as the men's barrack hotels, the children's crèches, dormitories, and recreation homes—cover the possibilities.

The type of house suitable for the West Virginia coal miner differs entirely from the house needed by the highly paid mechanic in a manufacturing town of Ohio; but the underlying fundamentals remain un-



Typical Floor Plan



Twelve Family Apartment House, Bridgeport, Conn.  
Alfred C. Bosson, Architect



changed, and with knowledge of the operatives, their scale of wages, hours of labor, and location of the plant and available land, it is not difficult to decide upon the most desirable type of housing to provide.

As a general rule the remodeled property demands the smallest investment and is the least desirable; but where time is an object, or substantial existing houses are available, although not arranged quite as they should be, the addition of a few windows and rearrangement of a few partitions and new sanitary appliances will work wonders in the way of improvement. The disadvantages that this method suffers from are that in practically all cases the original structures are without fire resisting exteriors and, therefore, cannot be considered permanent. They entail a great expense for upkeep due to the continuous use of paint, repair of leaky roofs and windows, and invariably they are closer together than is desirable. If all these defects are remedied, it will usually be found to have been more expensive than starting from the ground up, on land obtained elsewhere.

Under ideal circumstances the compact, conveniently arranged, individual house for one family, in its own small plot of ground, with air and light on all sides, is the best type, and in congested districts the best varies from this down to the three-story tenement house, which gives the cheapest rent where land has much value.

The division of the land naturally varies with the several forms of improvement; for instance, on a property divided into lots 50 by 100 feet, and improved with three-story buildings, not more than between six and seven such units per acre are possible. Thus in this type of improvement a maximum of twenty families to the acre is all that can be considered. In the case of the individual, isolated houses which have garden or playground space, eight to twelve per acre can be installed; but if the land is reasonably cheap, as few as four per acre is a more desirable number.

The two family isolated house has the advantage of giving the tenant owner the opportunity of getting an income from the one-half while living in the other, and the addition of one or two rooms for lodgers often makes a house more desirable in spite of being more expensive to the original renter. Single houses in rows are satisfactory, provided the rows are not too long — six to eight houses form the best group. This type has the disadvantage of having no side ground, but is easier to heat, and having party walls, which should run up through the roof, requires only sim-

ple roof arrangements. The individual house is capable of being rented or sold to employees at a comparatively low price.

In all cases the house should, if possible, be set back from the building line and not placed right upon the street. In towns all improvements should occupy both sides of the streets instead of being confined to one side to prevent their being spoiled by a bad development opposite.

The multi-family house should have plenty of space, otherwise the children play in the street at considerable risk to themselves and annoyance to the tenants. Through ventilation, that is, windows on opposite sides of each section in the one occupation, is essential to health.

The form of construction and finish varies not only with the rent that can be paid but also with the geographical location and the character of tenants. For instance, the rent obtained from colored occupants is proportionately higher than from white people, for as a rule they are more destructive, and more upkeep and renovation expense is placed upon the owners.

In some sections of the country open fireplaces are sufficient to provide all the heating necessary, while in others a good, practical heater is indispensable, but in any case suitable coal storage must be arranged.

In places where the proportion of unmarried men is considerable, houses with additional rooms are essential, as these men have to be cared for as lodgers by the married men.

Back alleys should not be introduced as the difficulties of lighting and supervision are as great as main streets, and the corresponding benefits do not justify this expense.

In determining floor area it should be recognized that no living room under any circumstances should be less than 10 feet wide the narrow way, and at least one room in each apartment should have 144 available square feet of floor space. No bedroom should be less than 7½ feet the narrow way and not less than 96 square feet in area. These are the smallest sizes that should be used under any conditions and they should be enlarged wherever it is possible.

All employees' houses should have fireproof exteriors and roofs for permanence of investment, reduction of insurance, and minimum of upkeep. Where more than three families use a common stair, that stair should be fireproof and there should always be two means of exit in case of fire, and these should not be ladders or cable fire escapes. Under no circumstances should a basement be allowed to be used as living quarters,

nor should rubbish be permitted to accumulate there. In all multi-family houses there should be fire stops between each apartment, and winding stairs should not be allowed.

All forms of flimsy construction should be studiously avoided. Ornamental balustrades and all such details which serve no purpose, but create upkeep charges, should be eliminated. Substantial permanent materials known to be as little affected by the weather as possible should be used.

Running water should be provided within the accommodation made for each family and public toilets should never be allowed, no matter how cheap the development. All destructible features, such as doors, windows, cupboards, hardware, plumbing fixtures, etc., should be made of stock patterns so that replacements can be readily and inexpensively made.

Those portions of the construction which come under the heading of equipment, such as gas and electric pipes, water and plumbing pipes, should all be exposed and readily accessible for change and renovation. Inspection eyes are needed at all changes of direction in pipes where there is the slightest possibility of obstruction, and the design should always contemplate the improvement or repair of one portion without the necessity of destruction or replacement of other materials, such as plaster, flooring, etc. Paint where used — and it is one of the large upkeep items — should be the best and should in no case be stinted. Colors should be selected both for wear and appearance and dark ones should be avoided.

The size and division of the windows is of great importance. The actual glass area should never be less than one-twelfth, and preferably one-tenth of the floor area of the room in which it is placed, and not less than a full third of the window should be available for free air passage. Small lights of glass should be adopted both for appearance and cost of replacement. Provision for all furniture must be made in planning, as floor space is naturally limited.

*Financial Arrangements.* There are few progressive employers who at some time or other have not seriously considered an effort to better the housing conditions of their employees, and most of those who have hesitated have done so for one of two reasons. Either the capital could not be spared from the firm's resources or a suitable or satisfactory method of placing the accommodation provided in the hands of those actually requiring the better living quarters was uncertain.

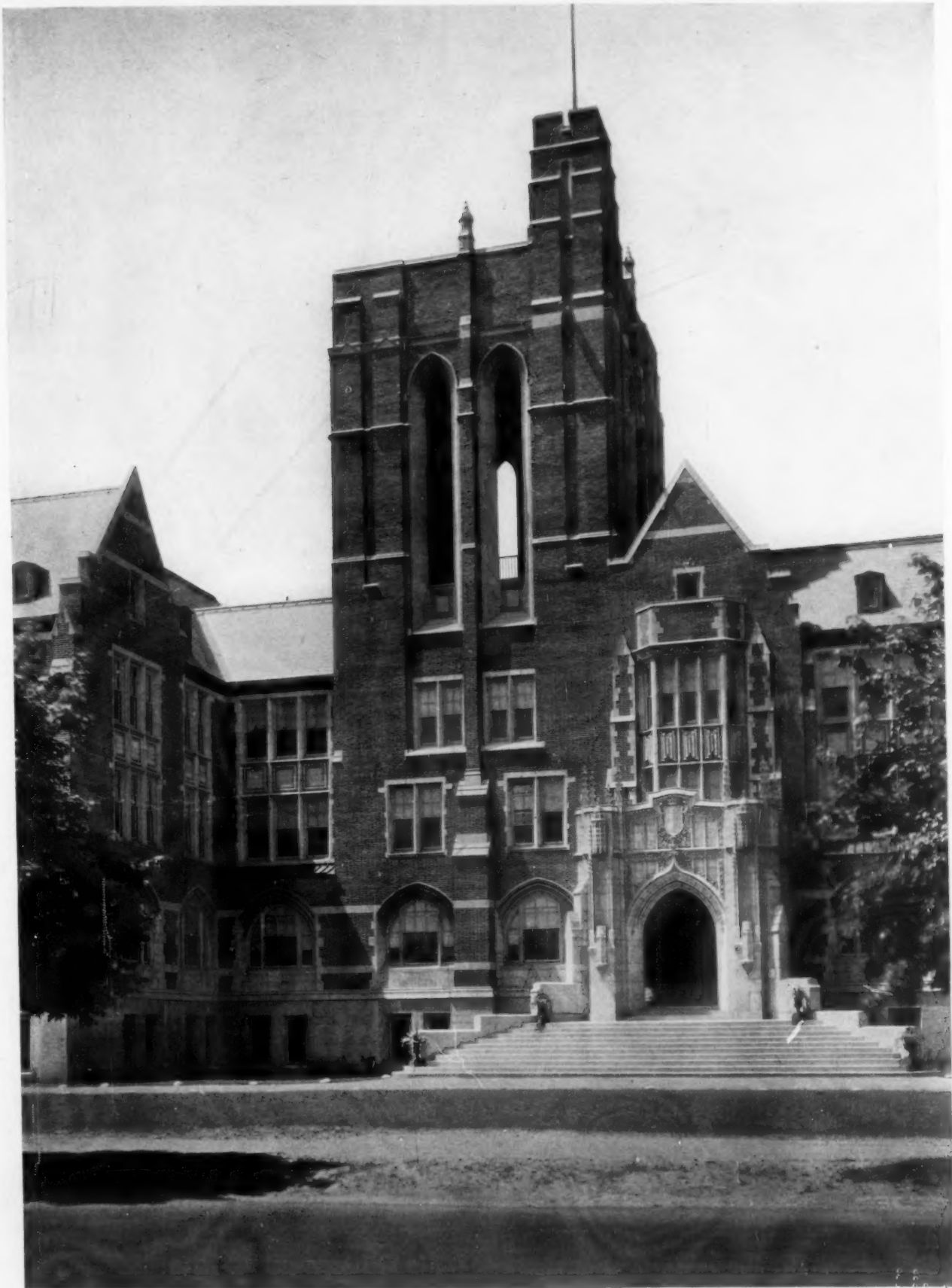
In many communities where the need of hous-

ing facilities is very pressing, and where no one employer is justified in undertaking the entire problem, a comprehensive proposition can be adopted in which a number of employers participate and pro-rata apportion the expense. This arrangement ensures to all the advantages of purchase in the wholesale, and larger developments provide opportunities for more diversified improvements by giving a wider range of accommodations. They are easier of control and define permanently the character of a bigger area, thereby ensuring the continued desirability of the section because if large enough it is comparatively independent of what happens beyond its own limits. The cost of upkeep and supervision correspondingly go down as the number of units or families under one management increases.

Where a development is started in the outskirts of a town, ample land should be acquired. In smaller developments options should be obtained upon land in the vicinity that in other hands could be developed in a manner which might prove objectionable to the enterprise in question. In other words, every safeguard to ensure the permanence of the desirability of everything should be adopted to protect the investment. In financing such a development, the procedure that first comes to mind is for the employer to purchase land and erect a number of suitable houses upon it, paying for everything as contracted for, then renting the same to employees, or selling them on an instalment plan. This is the easiest method, but does not offer as much encouragement as if certain modifications were introduced. Where it is undesirable to take the total cost out of the firm's exchequer at one time, a mortgage covering a very large proportion of the cost should be arranged which can be turned over to the employee as his liability when he takes possession of the house. The need of this aid being so obvious and frequent, certain financial institutions have gone exhaustively into the subject and have reduced the proposition under favorable circumstances to a fairly definite program, enabling the owners to get financial assistance along mutually advantageous lines.

The majority of employers do not desire to make a profit from employees' dwellings, and are quite satisfied to earn a fair interest rate on the investment and to obtain the principal return in the added efficiency of the workers and the very largely reduced loss of labor from sickness. In consequence, houses usually can be turned over to the employees at cost, plus fair interest during the time they are paying for their homes.

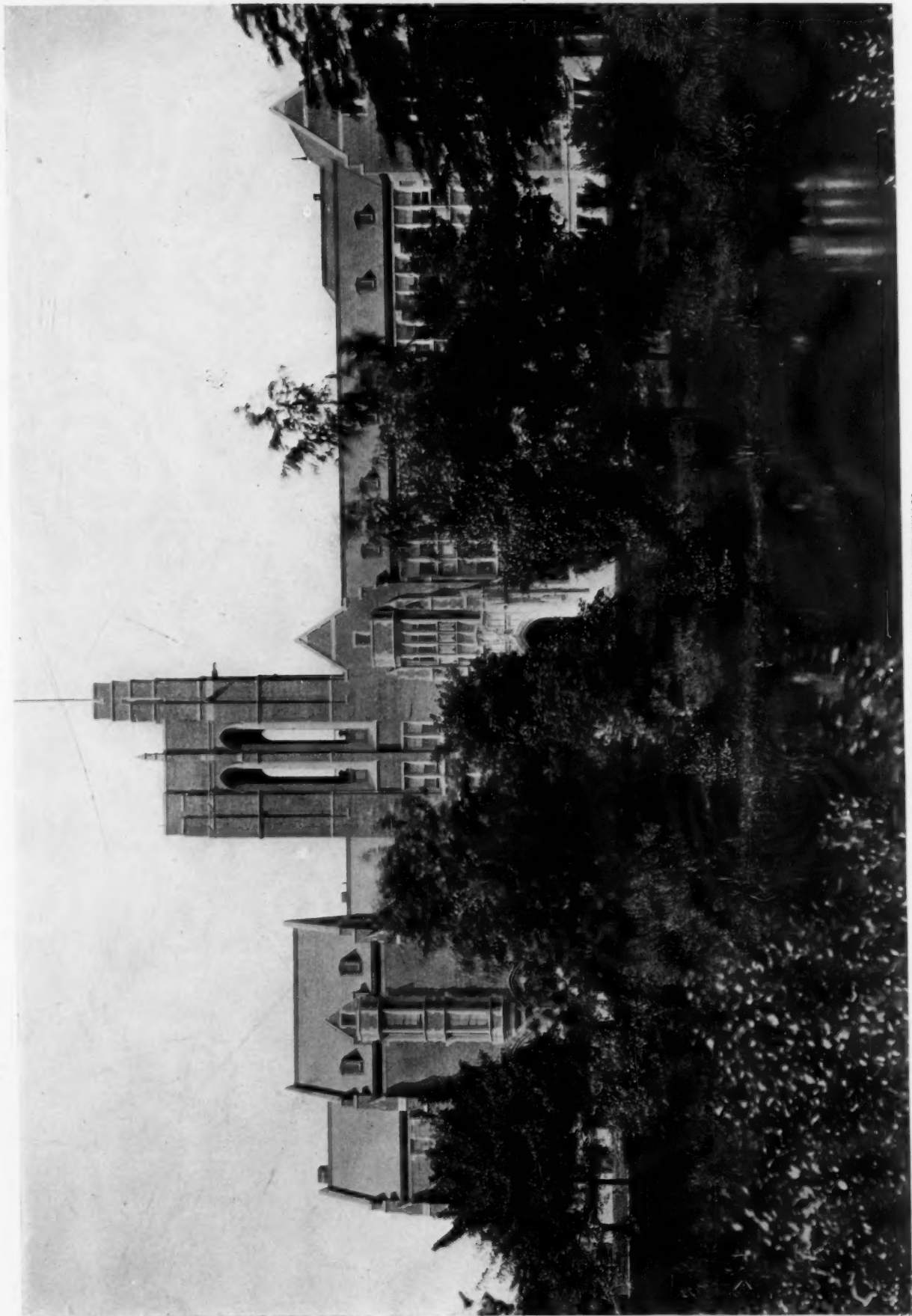




VIEW OF TOWER AND ENTRANCE BAY  
CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS







GENERAL VIEW OF EXTERIOR FROM FENWAY  
CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS



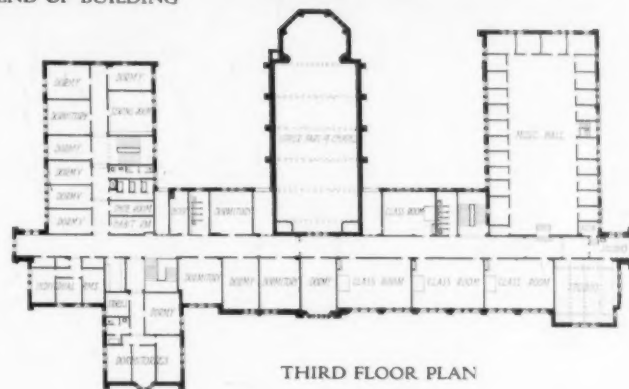




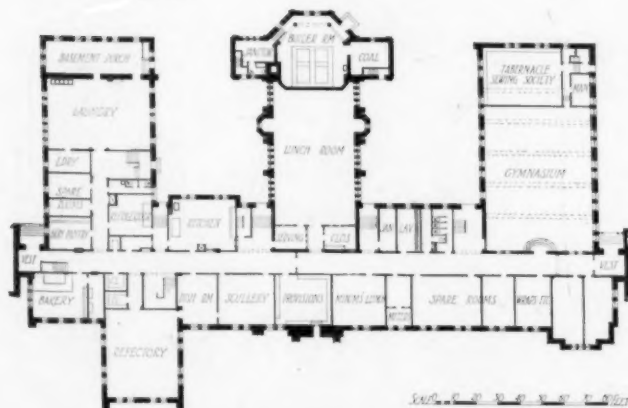
VIEW OF ACADEMY END OF BUILDING



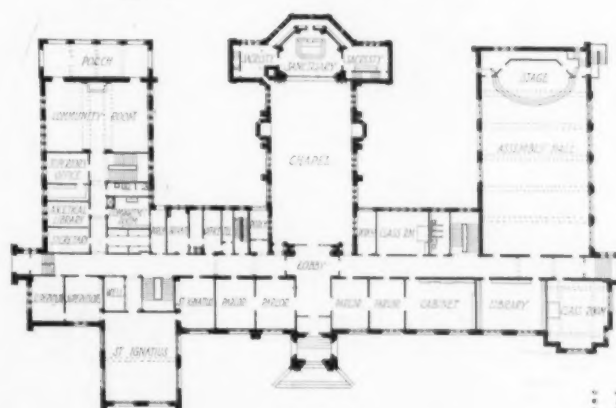
SECOND FLOOR PLAN



THIRD FLOOR PLAN



BASEMENT FLOOR PLAN



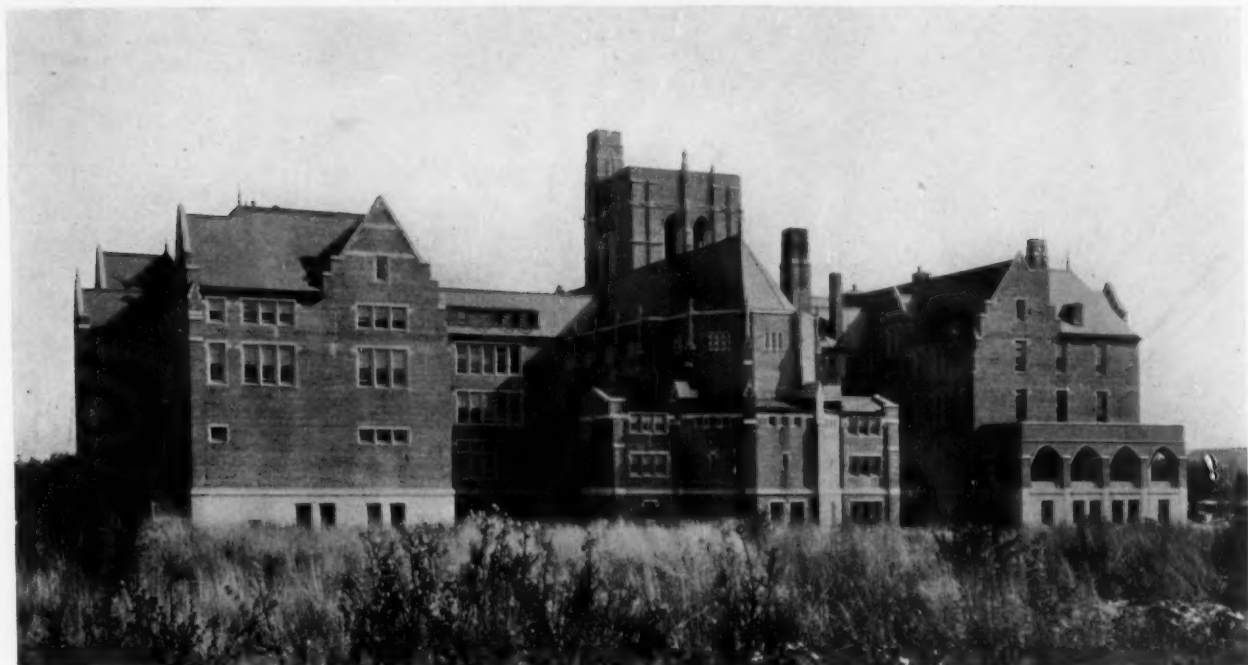
FIRST FLOOR PLAN

CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.

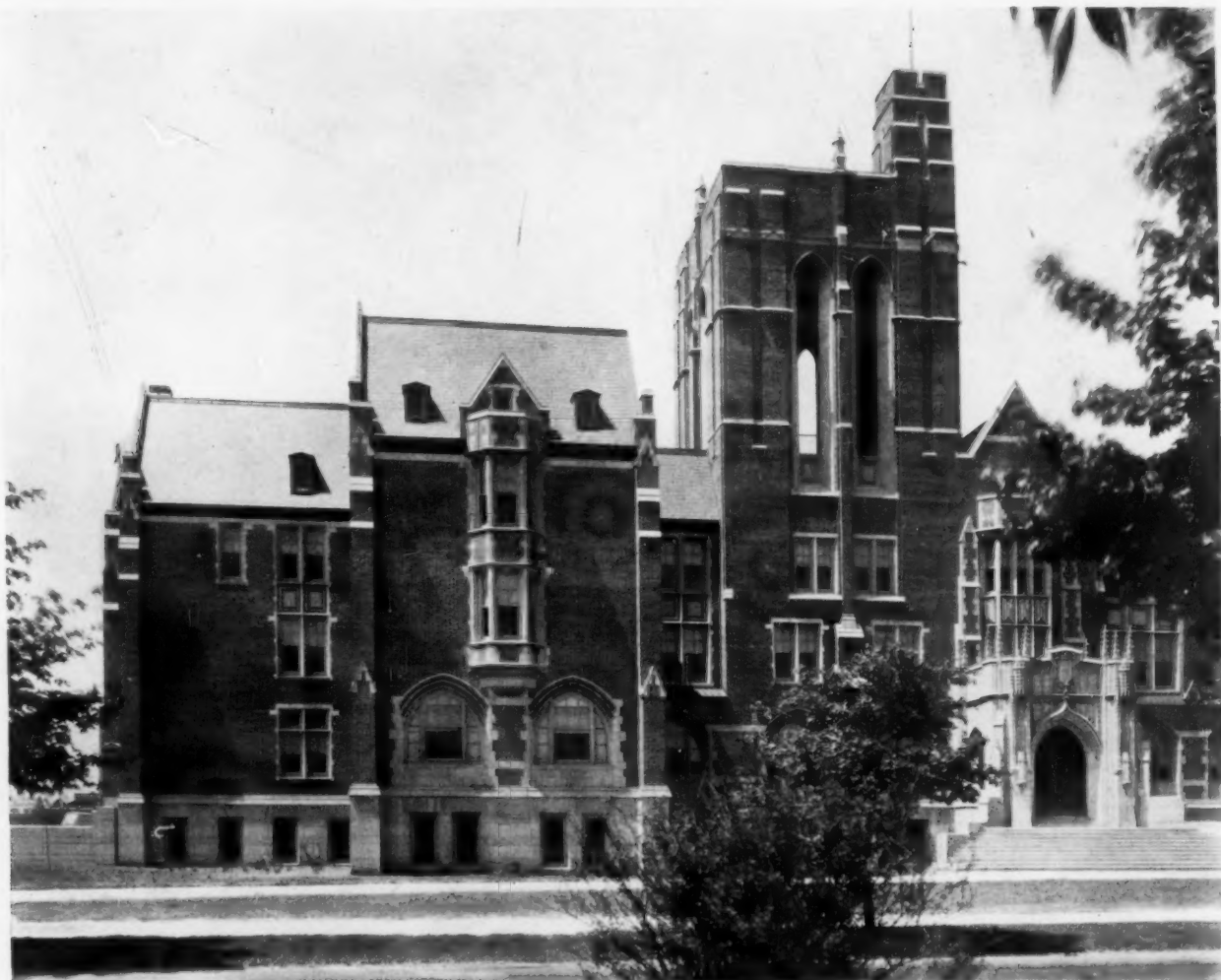
MAGINNIS & WALSH, ARCHITECTS

1840  
1841  
1842  
1843





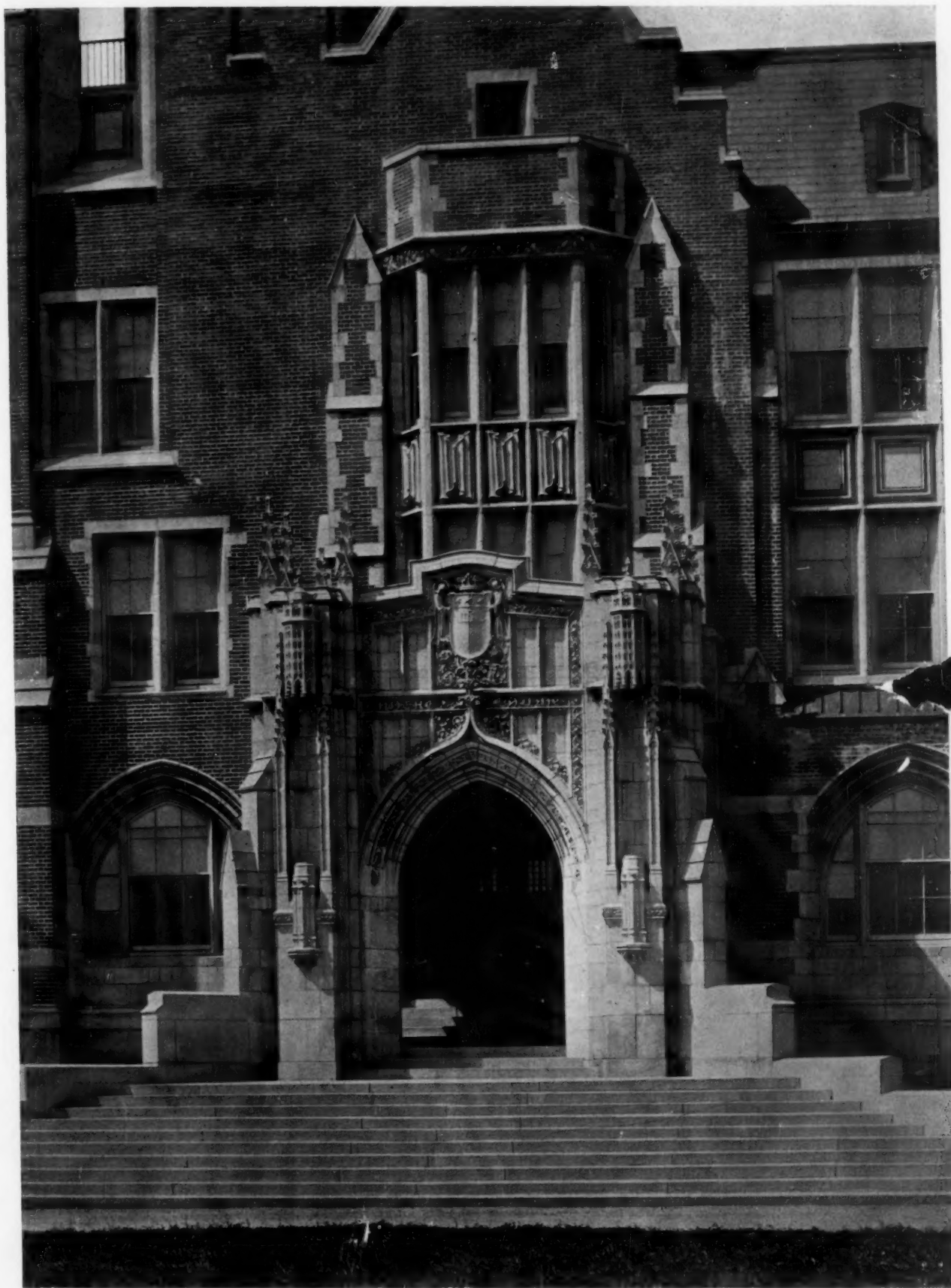
VIEW FROM THE REAR



DETAIL OF CONVENT END OF FRONT ELEVATION  
CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS

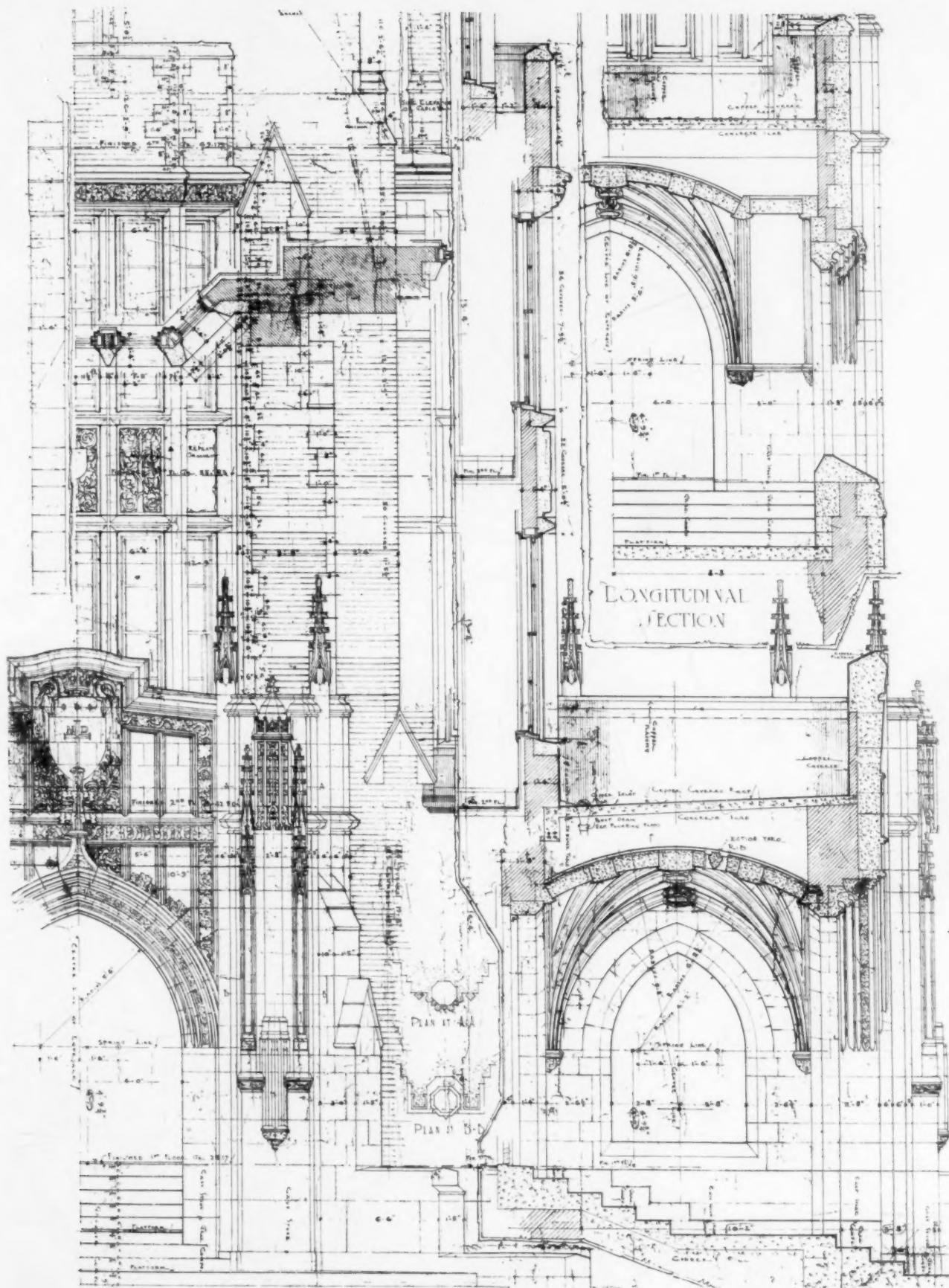






DETAIL OF ENTRANCE PORCH  
CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS

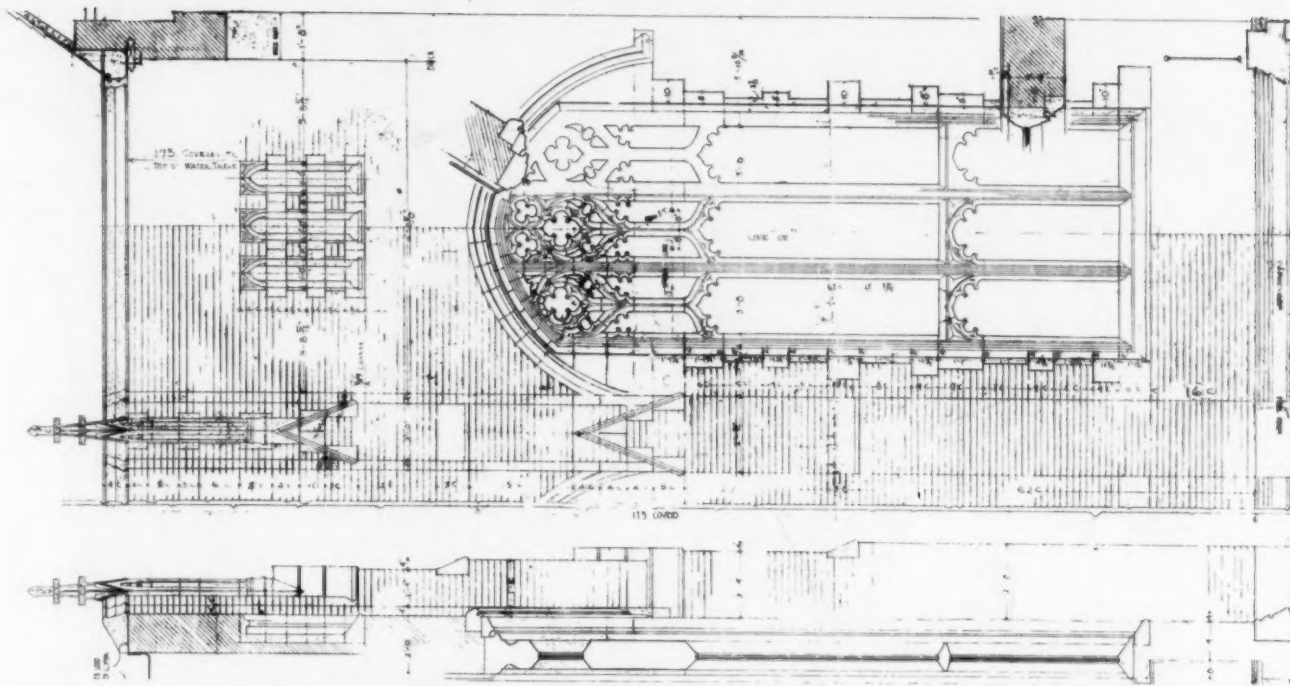
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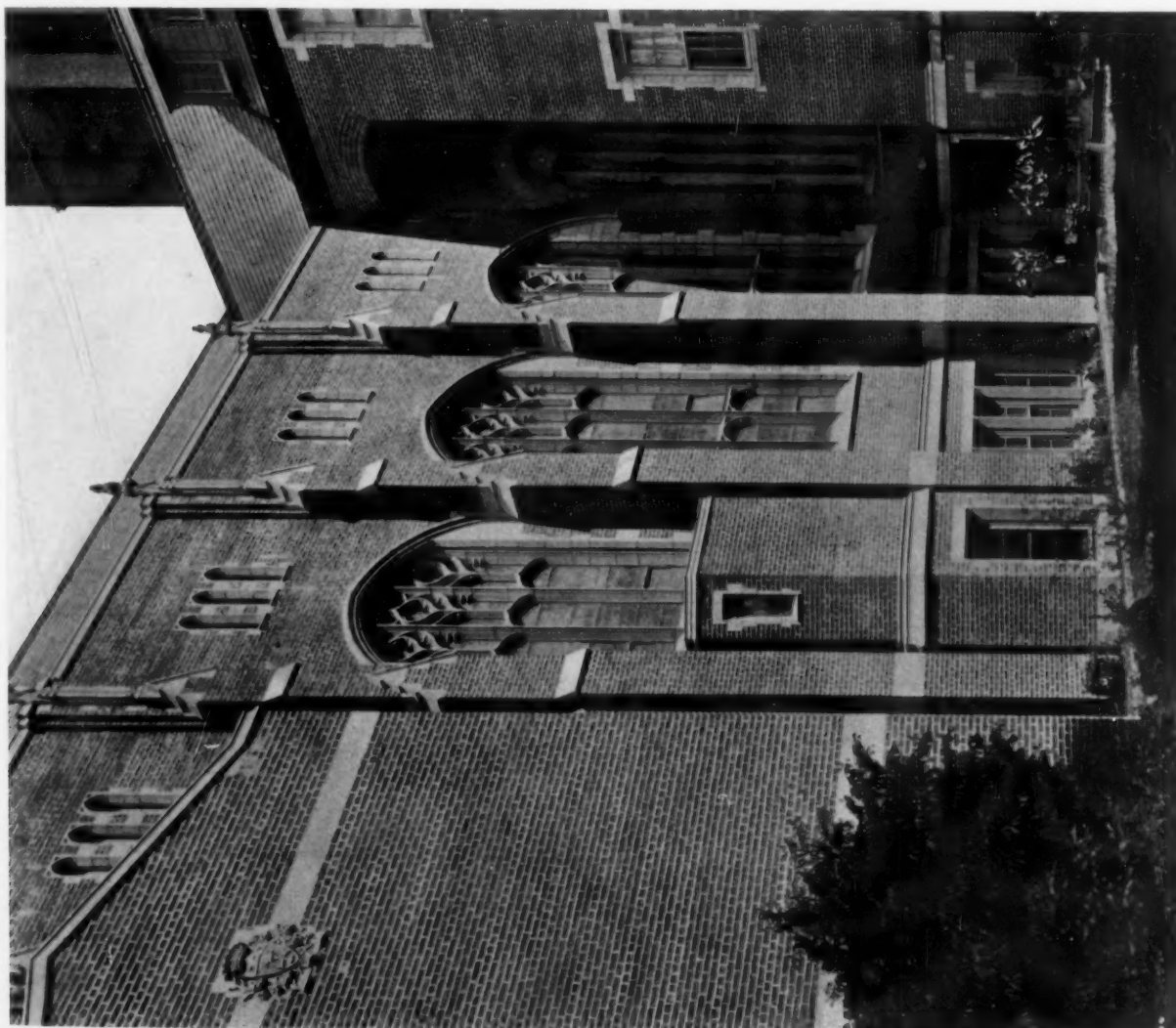
DETAIL OF ENTRANCE PORCH BAY  
 CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.  
 MAGINNIS & WALSH, ARCHITECTS



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DETAIL OF CHAPEL BAY AND WINDOW TRACERY



VIEW IN COURT SHOWING EXTERIOR OF CHAPEL

CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS.

MAGINNIS & WALSH, ARCHITECTS

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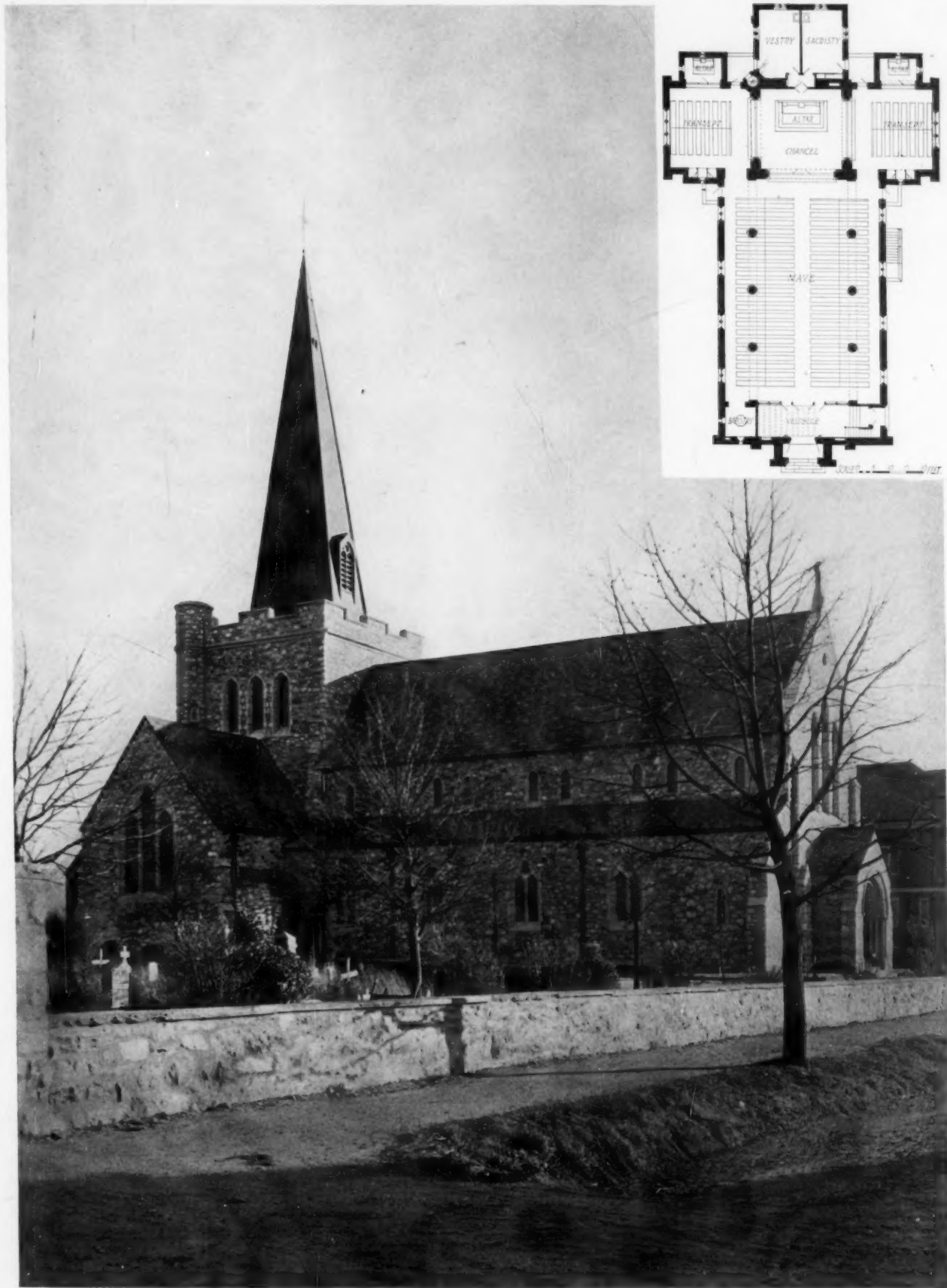


VIEW FROM REAR

ST. BRIGID'S ROMAN CATHOLIC CHURCH, WESTBURY, LONG ISLAND, N. Y.

F. BURRALL HOFFMAN, JR., ARCHITECT





GENERAL VIEW FROM STREET

ST. BRIGID'S ROMAN CATHOLIC CHURCH, WESTBURY, LONG ISLAND, N. Y.

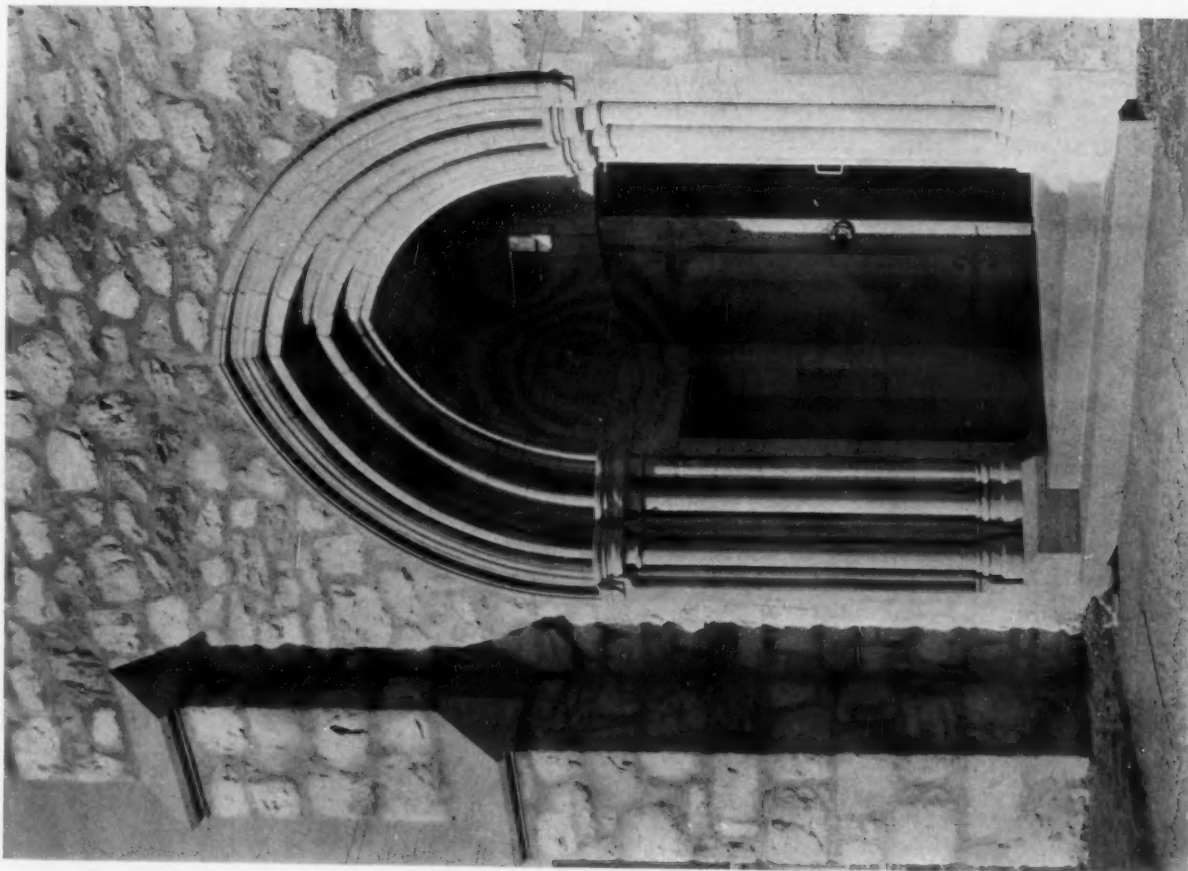
F. BURRALL HOFFMAN, JR., ARCHITECT



111



DETAIL OF DOORWAY TO SIDE AISLE



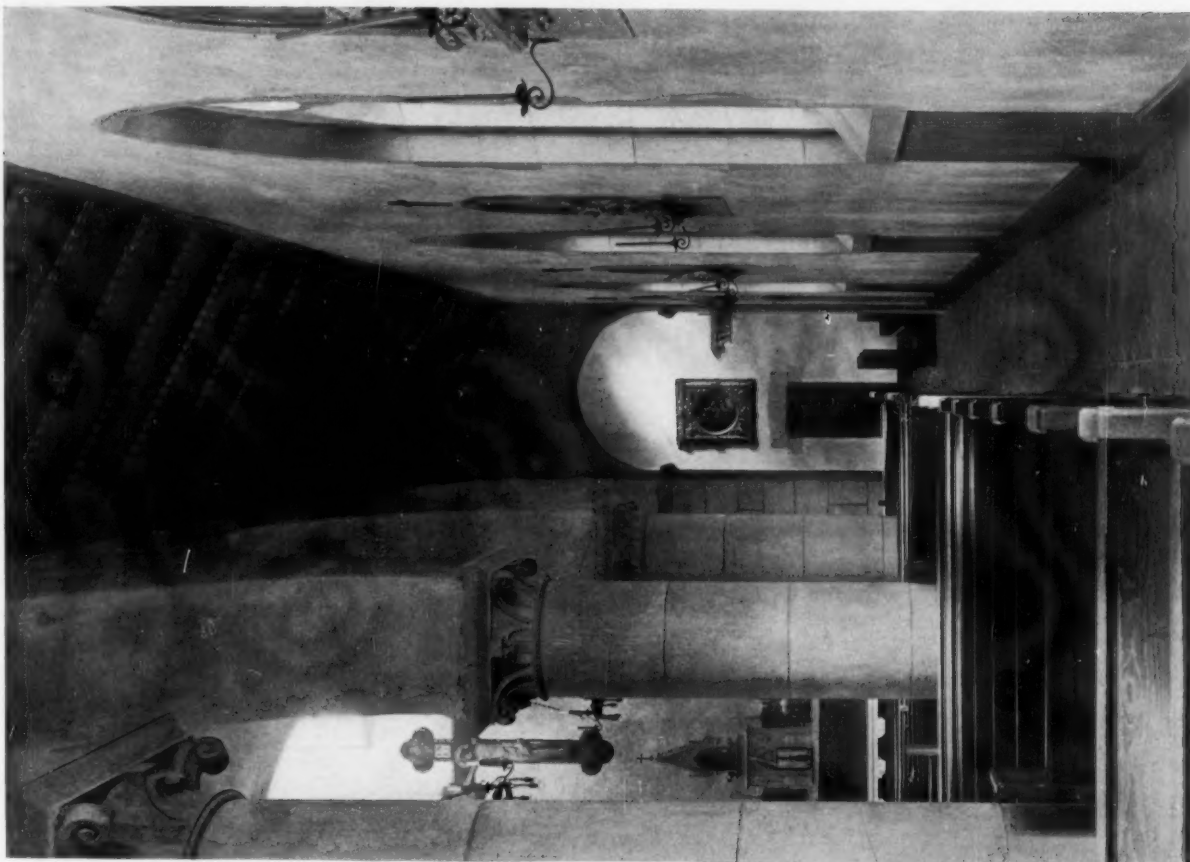
SIDE ENTRANCE TO VESTIBULE

ST. BRIGID'S ROMAN CATHOLIC CHURCH, WESTBURY, LONG ISLAND, N. Y.

F. BURRALL HOFFMAN, JR., ARCHITECT

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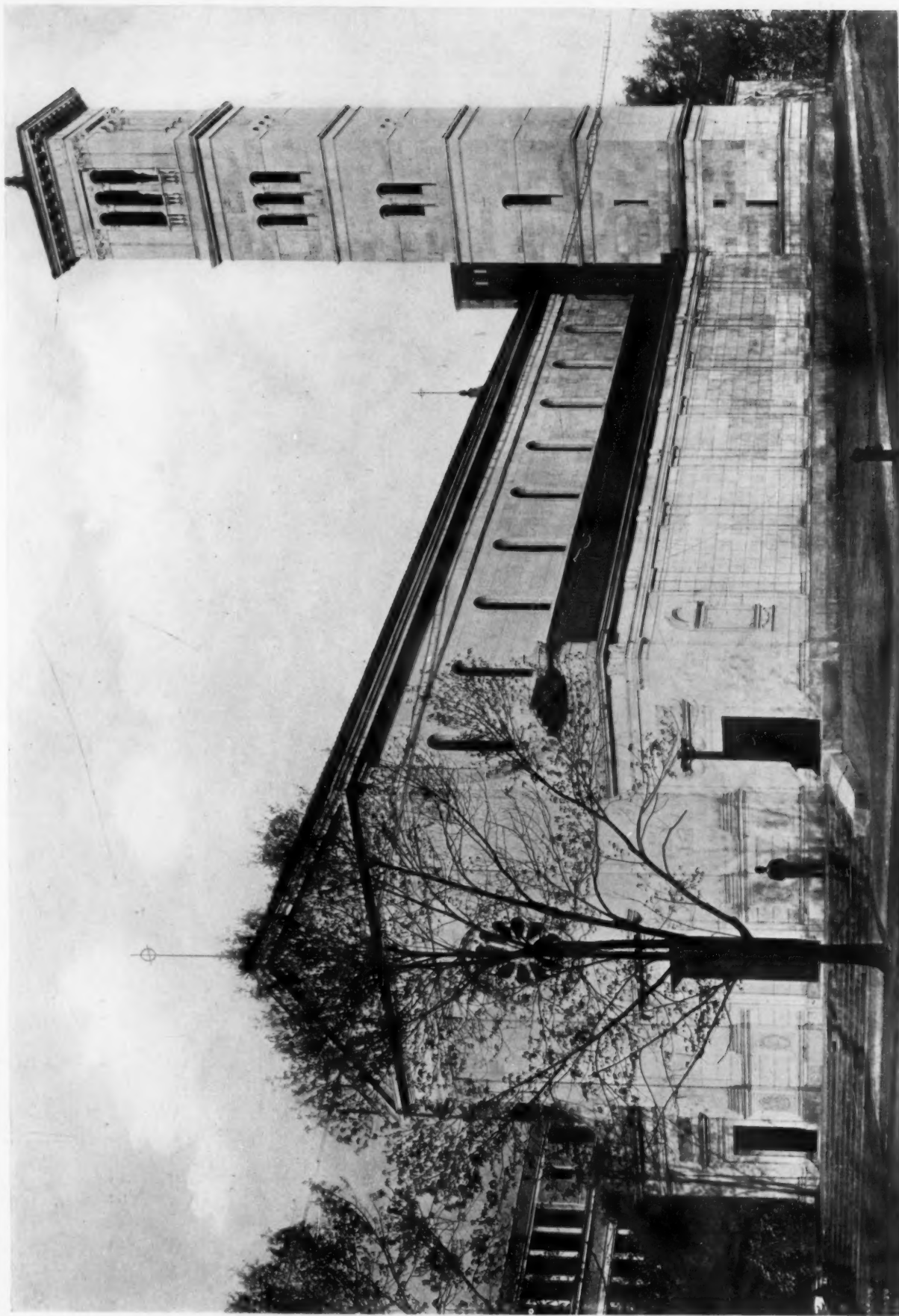
VIEW LOOKING DOWN SIDE AISLE



VIEW LOOKING TOWARD CHANCEL.

ST. BRIGID'S ROMAN CATHOLIC CHURCH, WESTBURY, LONG ISLAND, N. Y.  
F. BURRALL HOFFMAN, JR., ARCHITECT

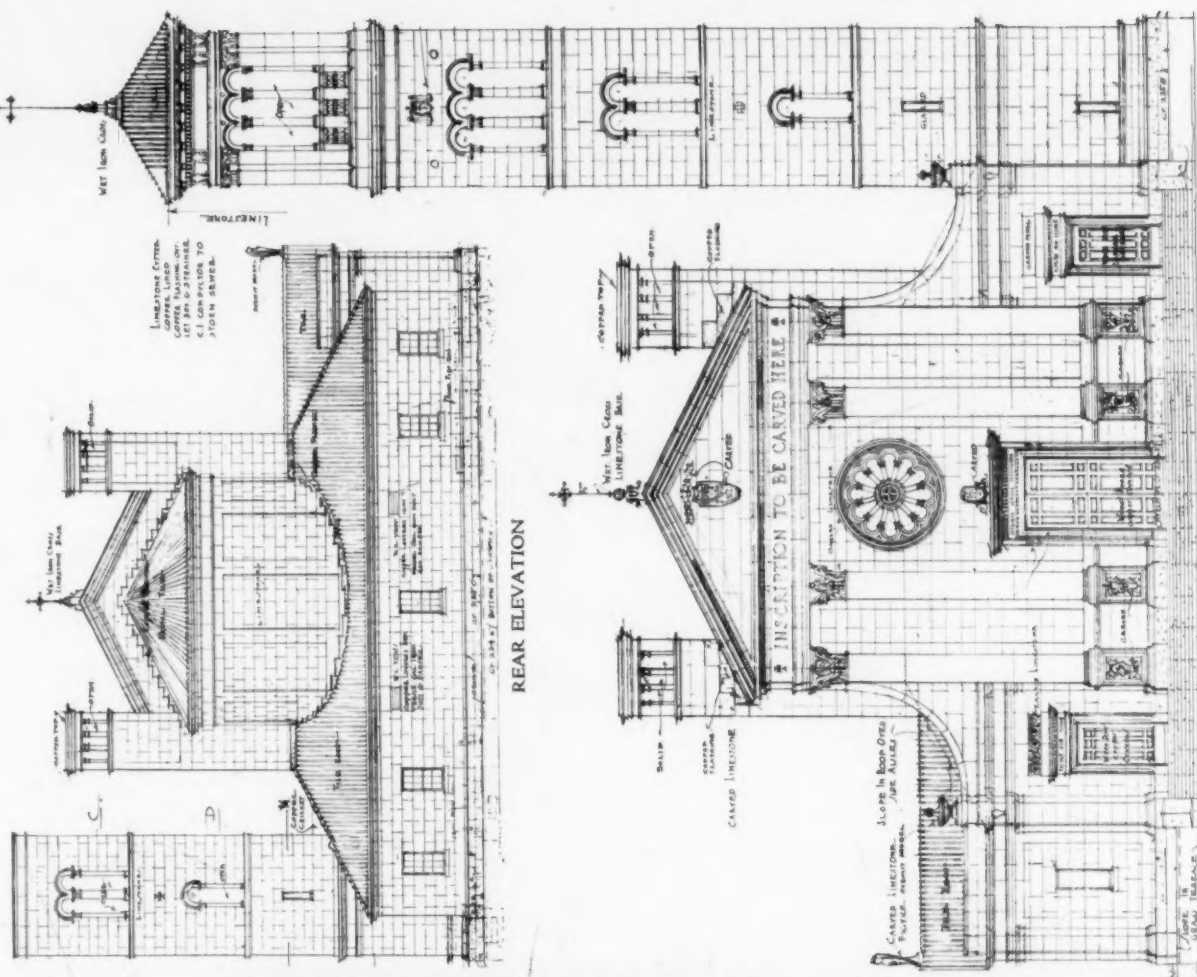
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GENERAL VIEW FROM STREET  
ST. MARY'S ROMAN CATHOLIC CHURCH, AKRON, OHIO  
EDWARD T. P. GRAHAM, ARCHITECT



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FRONT ELEVATION

REAR ELEVATION

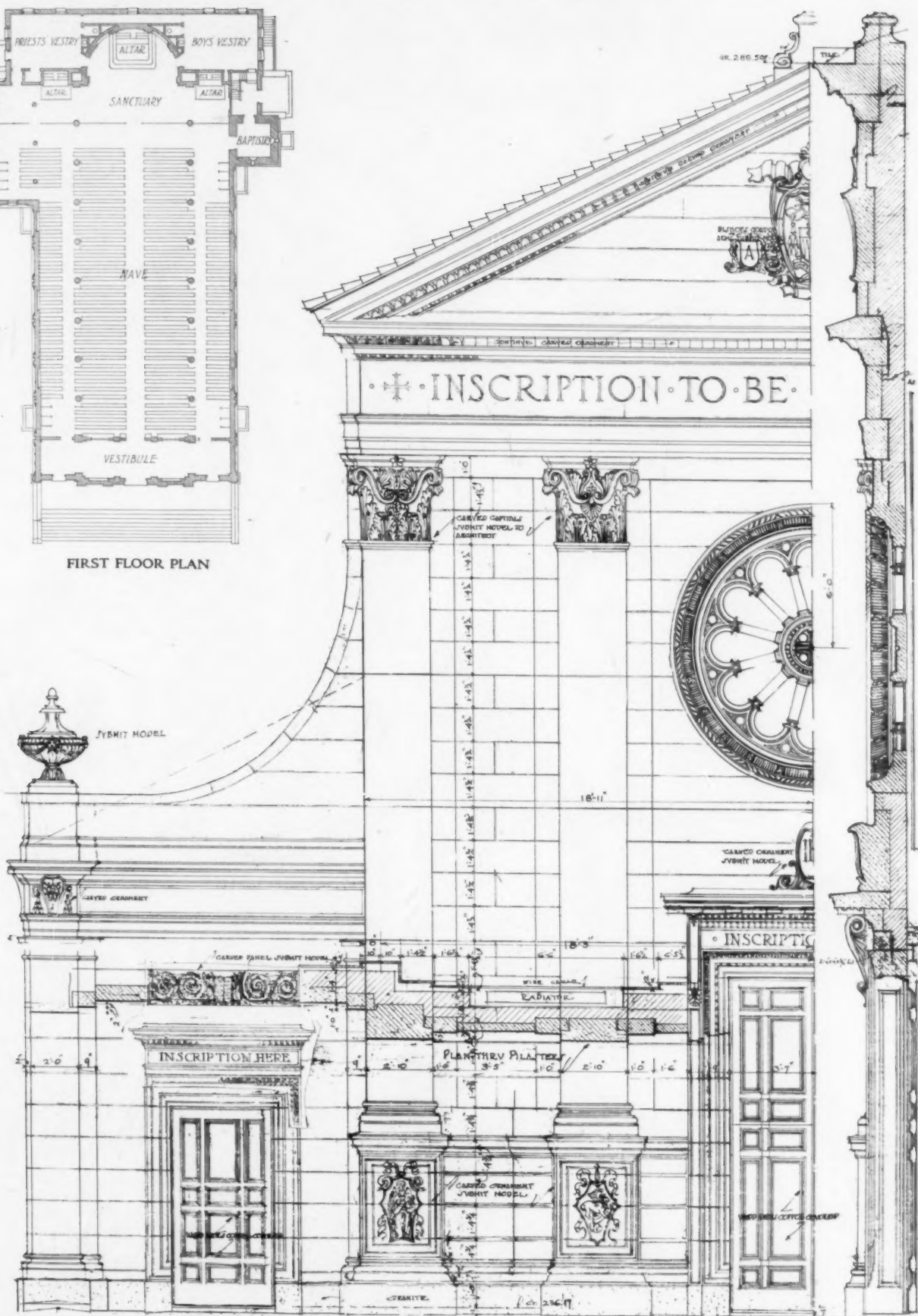
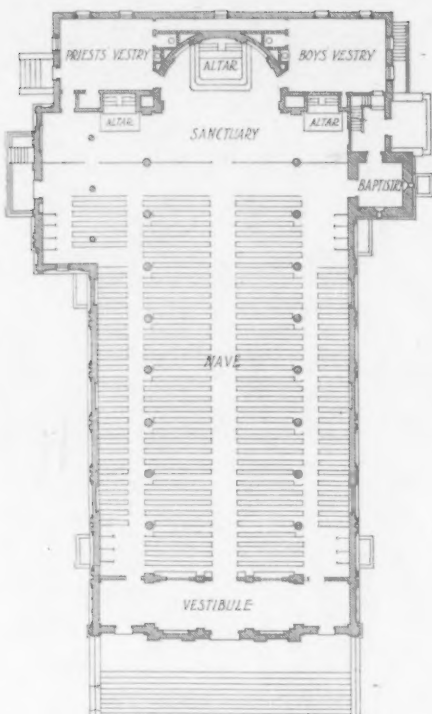
DETAIL OF MAIN FACADE

ST. MARY'S ROMAN CATHOLIC CHURCH, AKRON, OHIO

EDWARD T. P. GRAHAM, ARCHITECT

24





ST. MARY'S ROMAN CATHOLIC CHURCH, AKRON, OHIO  
EDWARD T. P. GRAHAM, ARCHITECT





INTERIOR VIEW LOOKING TOWARD CHANCEL  
ST. MARY'S ROMAN CATHOLIC CHURCH, AKRON, OHIO  
EDWARD T. P. GRAHAM, ARCHITECT



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GENERAL VIEW FROM STREET  
CHURCH OF THE BLESSED SACRAMENT, JAMAICA PLAIN, MASS.  
CHARLES R. GRECO, ARCHITECT

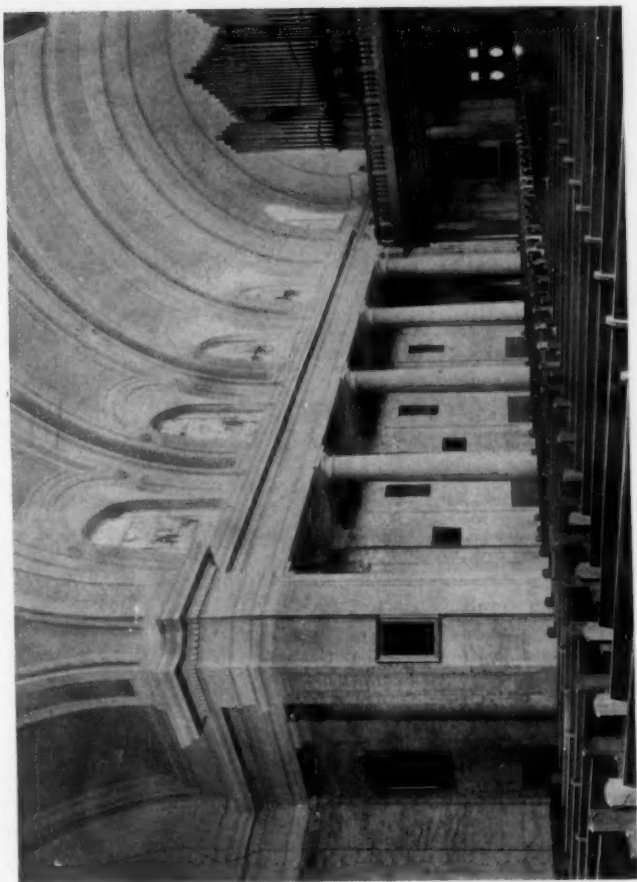




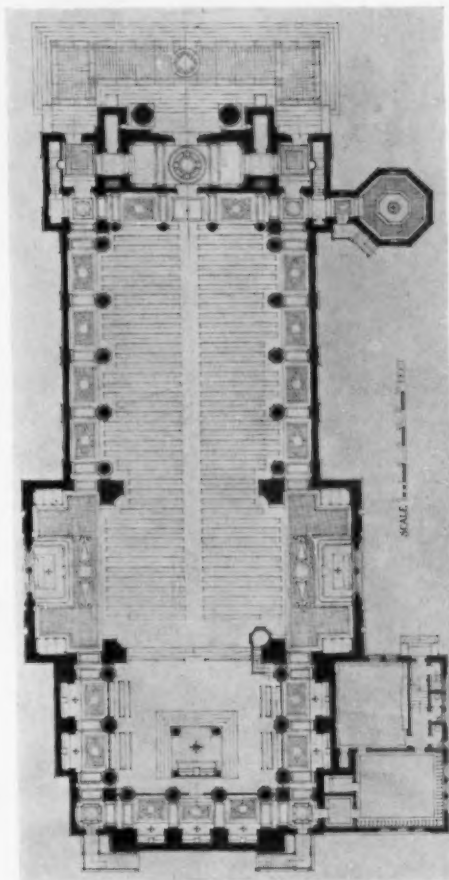


VIEW OF TRANSEPT AND DOME  
CHURCH OF THE BLESSED SACRAMENT, JAMAICA PLAIN, MASS.  
CHARLES R. GRECO, ARCHITECT

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INTERIOR VIEW LOOKING TOWARD ORGAN GALLERY



FIRST FLOOR PLAN

CHURCH OF THE BLESSED SACRAMENT, JAMAICA PLAIN, MASS.

CHARLES R. GRECO, ARCHITECT



INTERIOR VIEW LOOKING TOWARD ALTAR



20



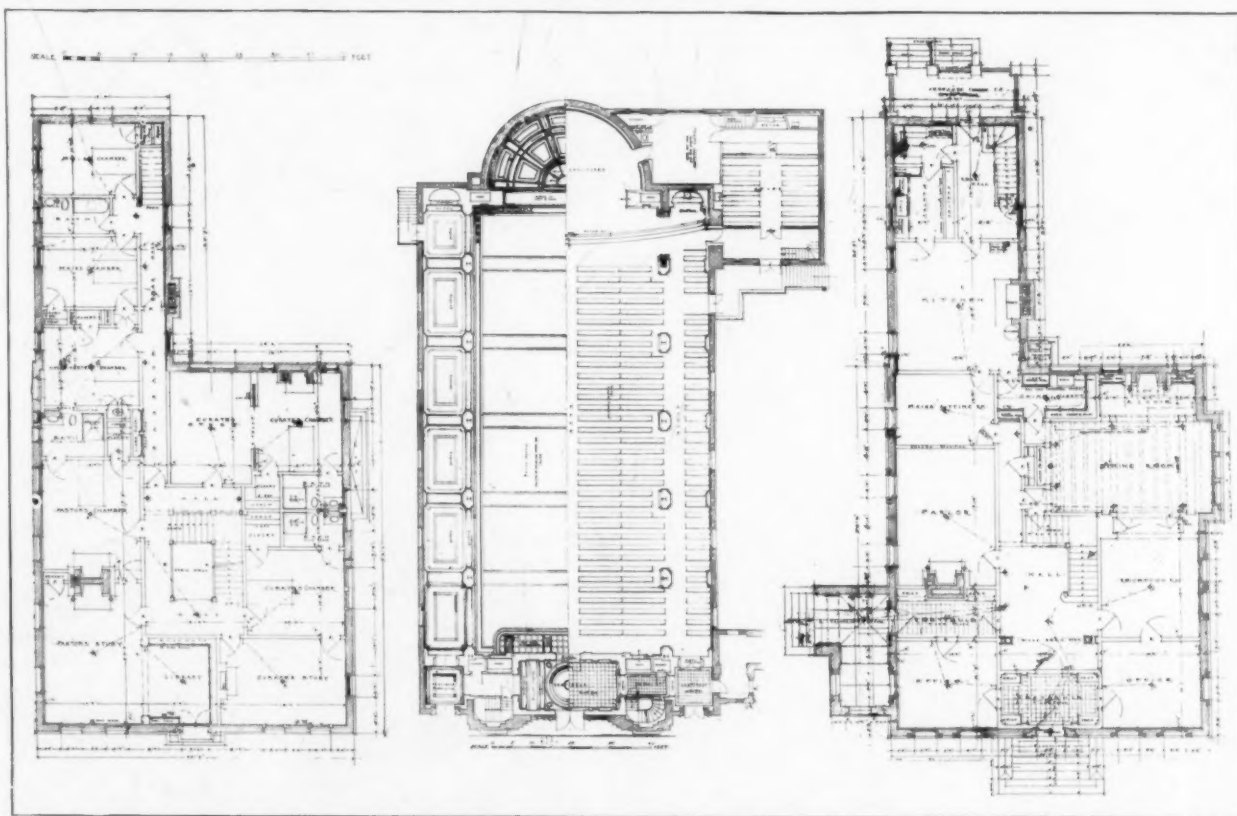
GENERAL VIEW FROM STREET  
ST. MATTHEW'S ROMAN CATHOLIC CHURCH, DORCHESTER, MASS.  
CHARLES R. GRECO, ARCHITECT

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VIEW OF CHURCH AND RECTORY



SECOND FLOOR PLAN OF RECTORY

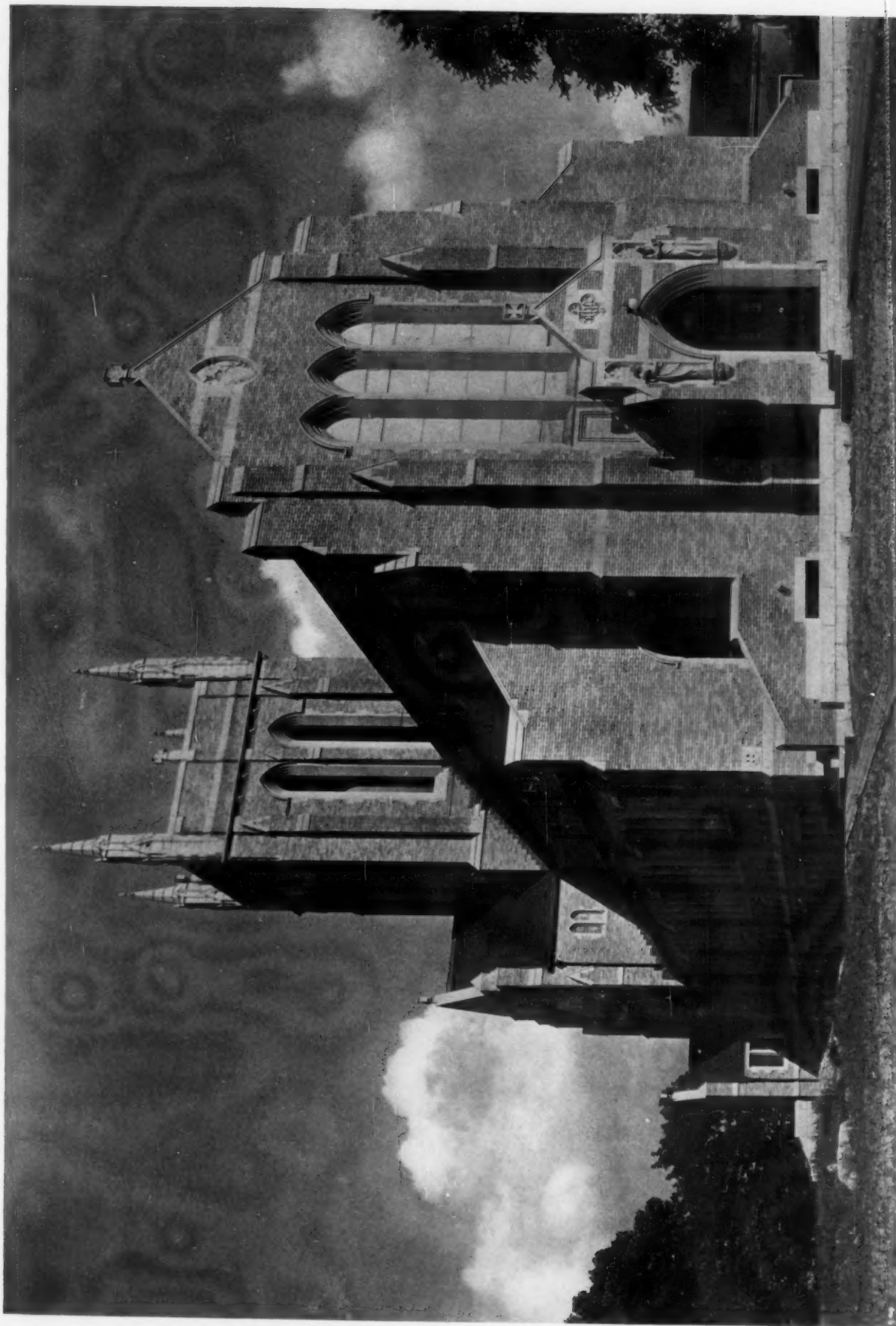
FIRST FLOOR PLAN OF CHURCH

FIRST FLOOR PLAN OF RECTORY

ST. MATTHEW'S ROMAN CATHOLIC CHURCH, DORCHESTER, MASS.

CHARLES R. GRECO, ARCHITECT

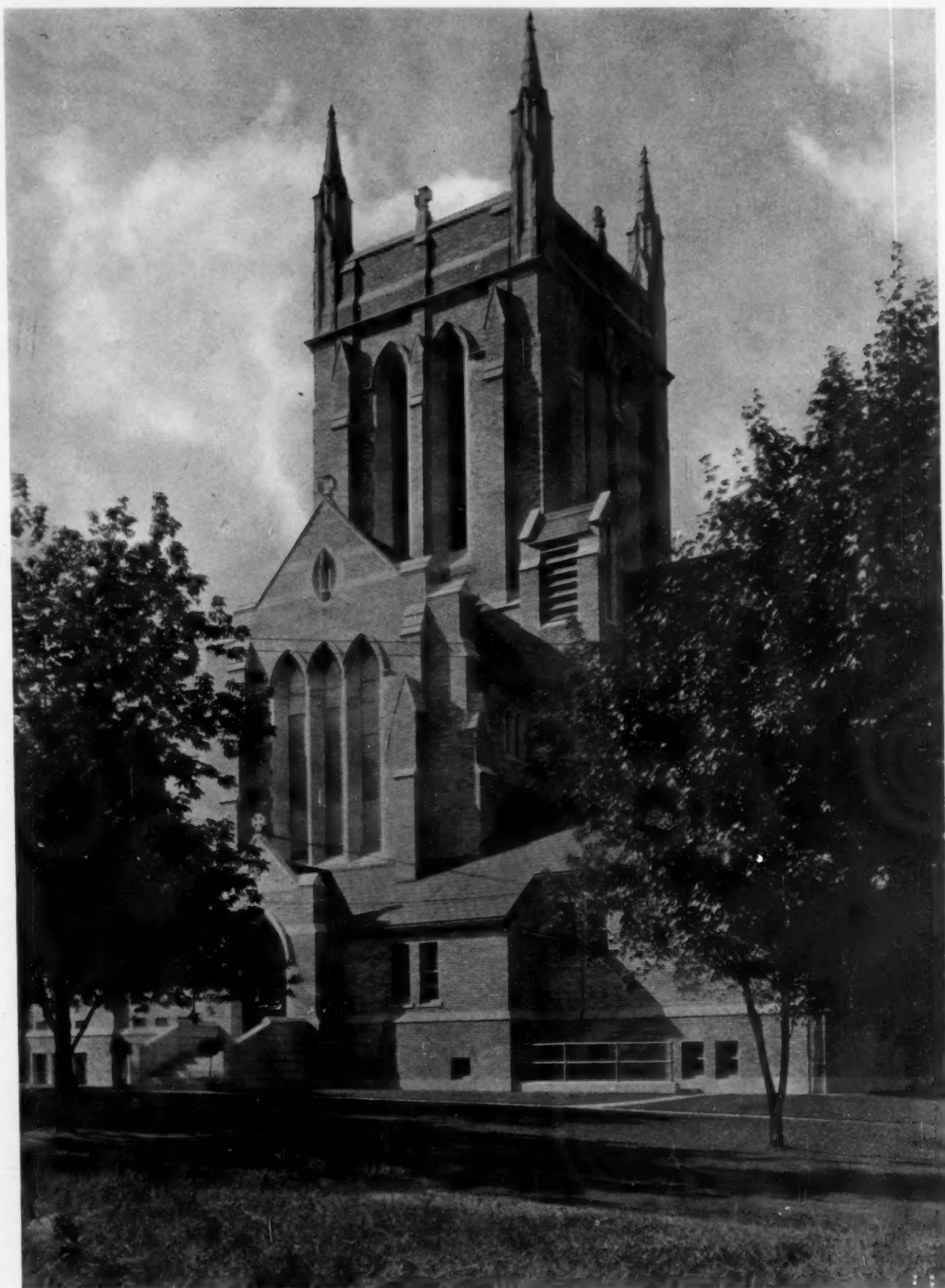
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GENERAL VIEW OF FRONT FROM THE STREET  
ST. EDWARD'S CHURCH, BROCKTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS



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DETAIL OF TOWER AND SIDE AISLE ENTRANCE  
ST. EDWARD'S CHURCH, BROCKTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS

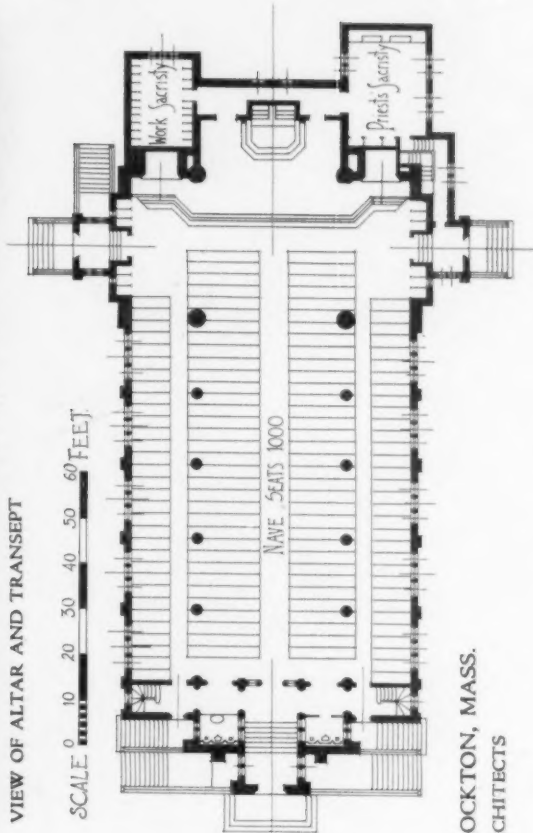






VIEW OF ALTAR AND TRANSEPT

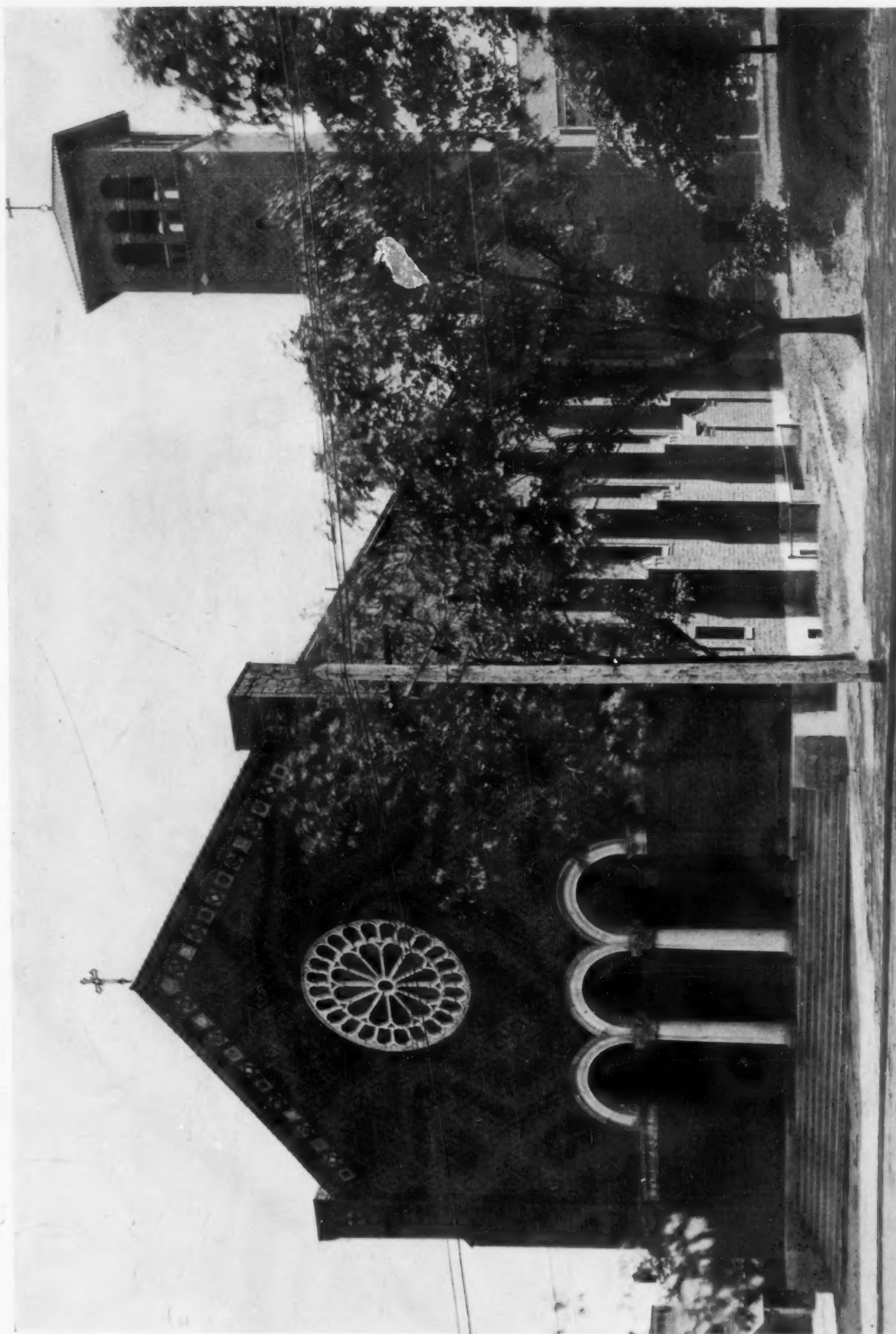
SCALE 0 10 20 30 40 50 60 FEET



INTERIOR VIEW LOOKING TOWARD CHANCEL

ST. EDWARD'S CHURCH, BROCKTON, MASS.  
MAGINNIS & WALSH, ARCHITECTS

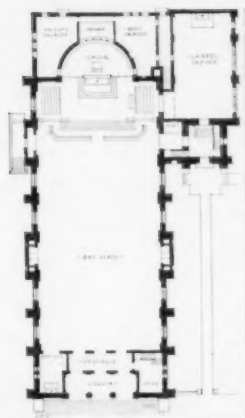
1847  
1848  
1849  
1850  
1851



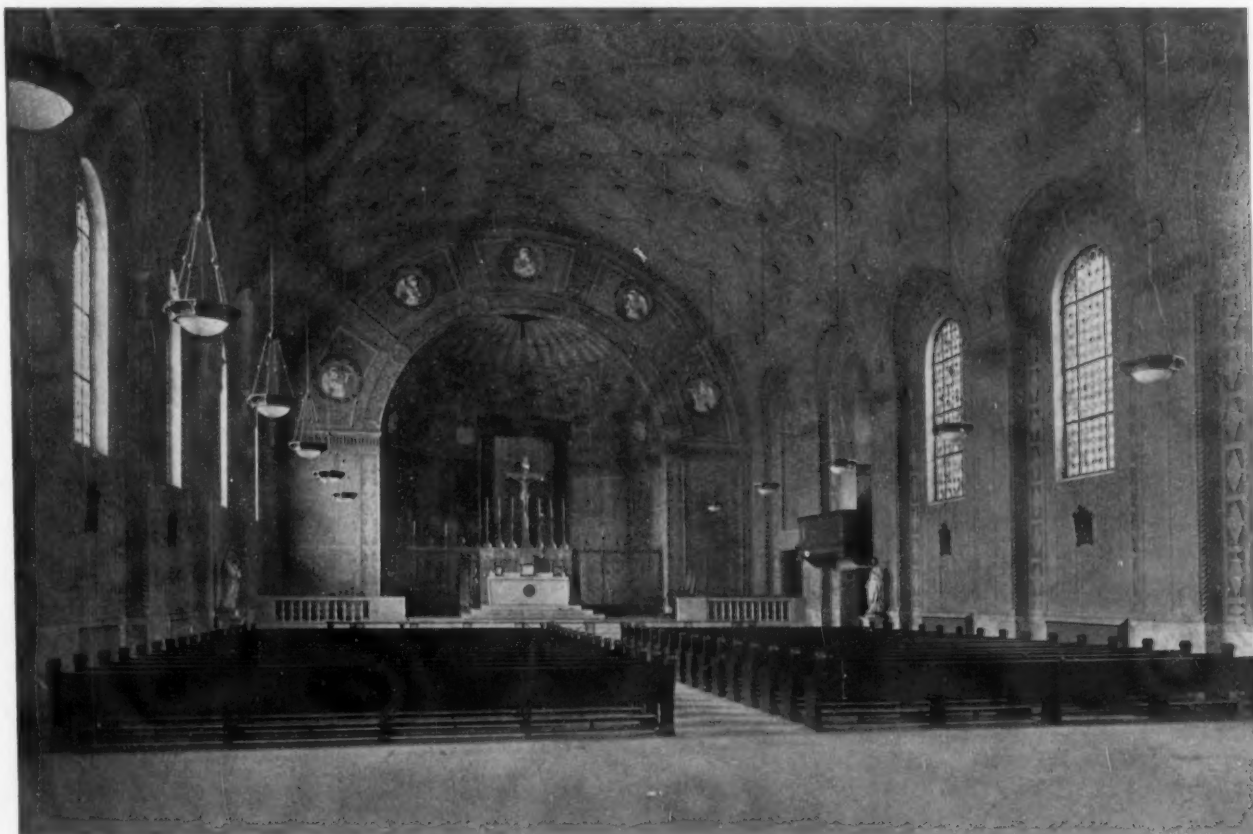
CHURCH OF THE HOLY ROSARY, COLUMBUS, OHIO  
H. H. Hiestand, Architect







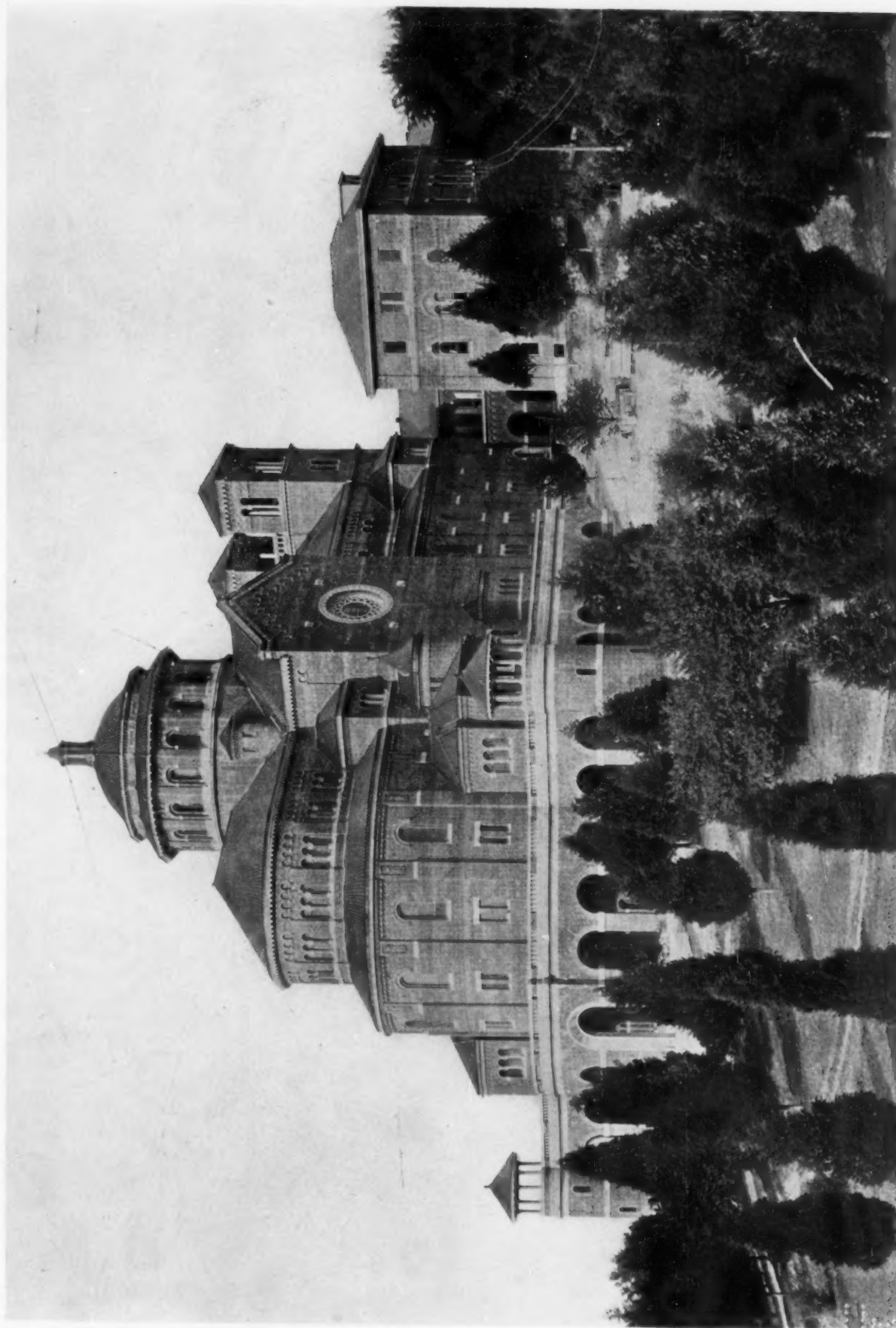
VIEW FROM REAR



INTERIOR VIEW LOOKING TOWARD CHANCEL  
CHURCH OF THE HOLY ROSARY, COLUMBUS, OHIO  
H. H. HIESTAND, ARCHITECT

1877  
1878  
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1897  
1898  
1899  
1900





CHAPEL OF THE IMMACULATE CONCEPTION CONVENT, FERDINAND, IND.  
VICTOR J. KLUTHO, ARCHITECT



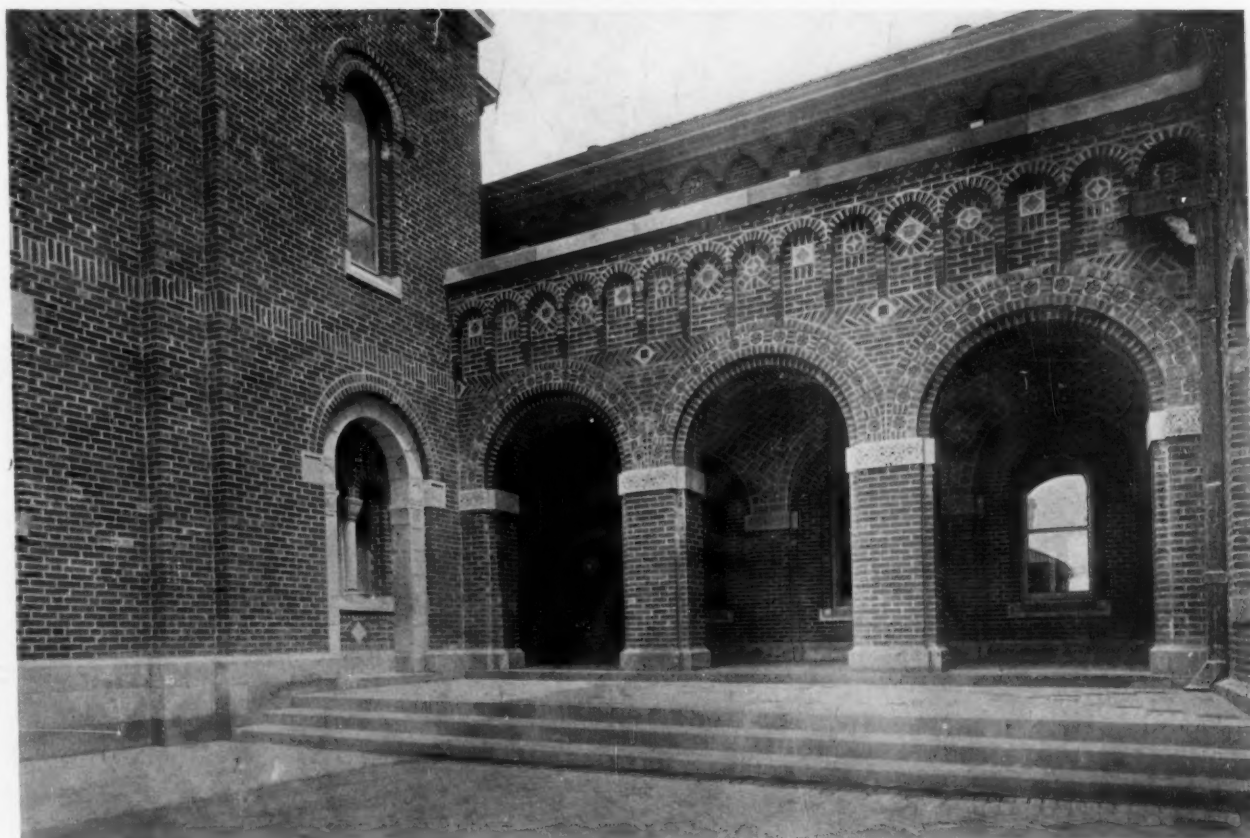








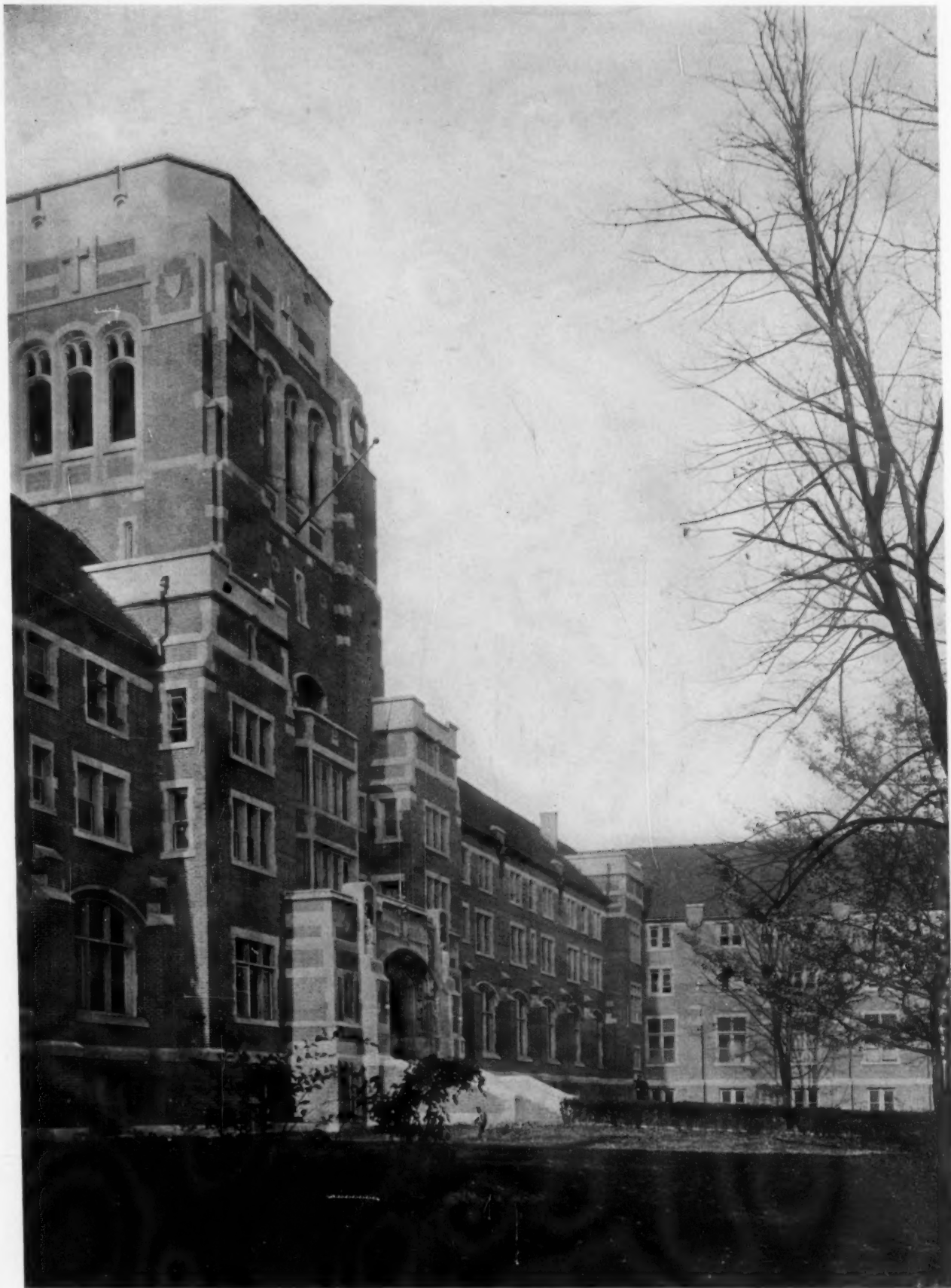
DETAIL OF DOME



VIEW OF COURT AND CLOISTER  
CHAPEL OF THE IMMACULATE CONCEPTION CONVENT, FERDINAND, IND.  
VICTOR J. KLUTHO, ARCHITECT

1870  
1871  
1872  
1873  
1874





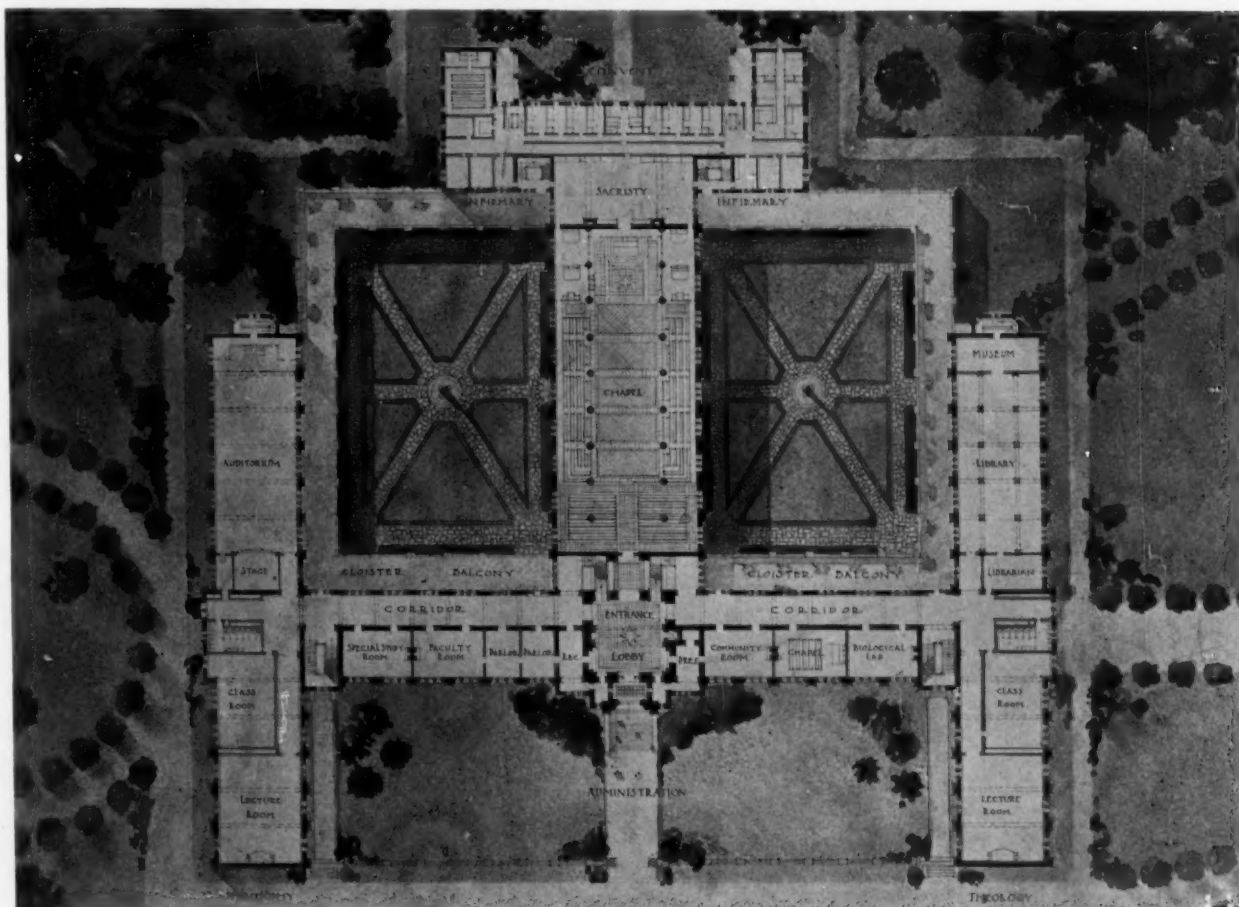
VIEW ACROSS FRONT OF BUILDING  
KENRICK SEMINARY, ST. LOUIS, MO.

JOHN T. COMES AND THOMAS F. IMBS, ASSOCIATED ARCHITECTS





VIEW LOOKING INTO COURT WITH CHAPEL WING AT RIGHT



FIRST FLOOR PLAN

KENRICK SEMINARY, ST. LOUIS, MO.

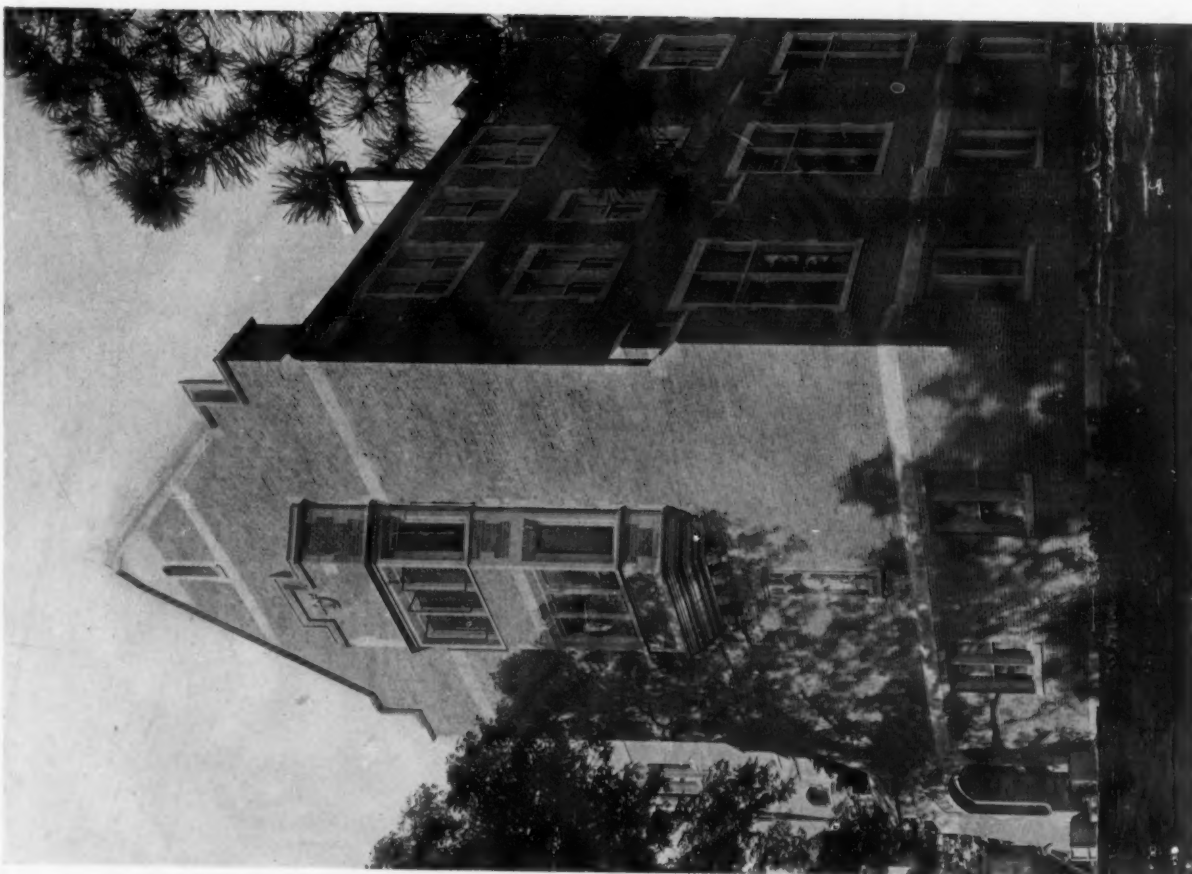
JOHN T. COMES AND THOMAS F. IMBS, ASSOCIATED ARCHITECTS







DETAIL OF TOWER AND ENTRANCE



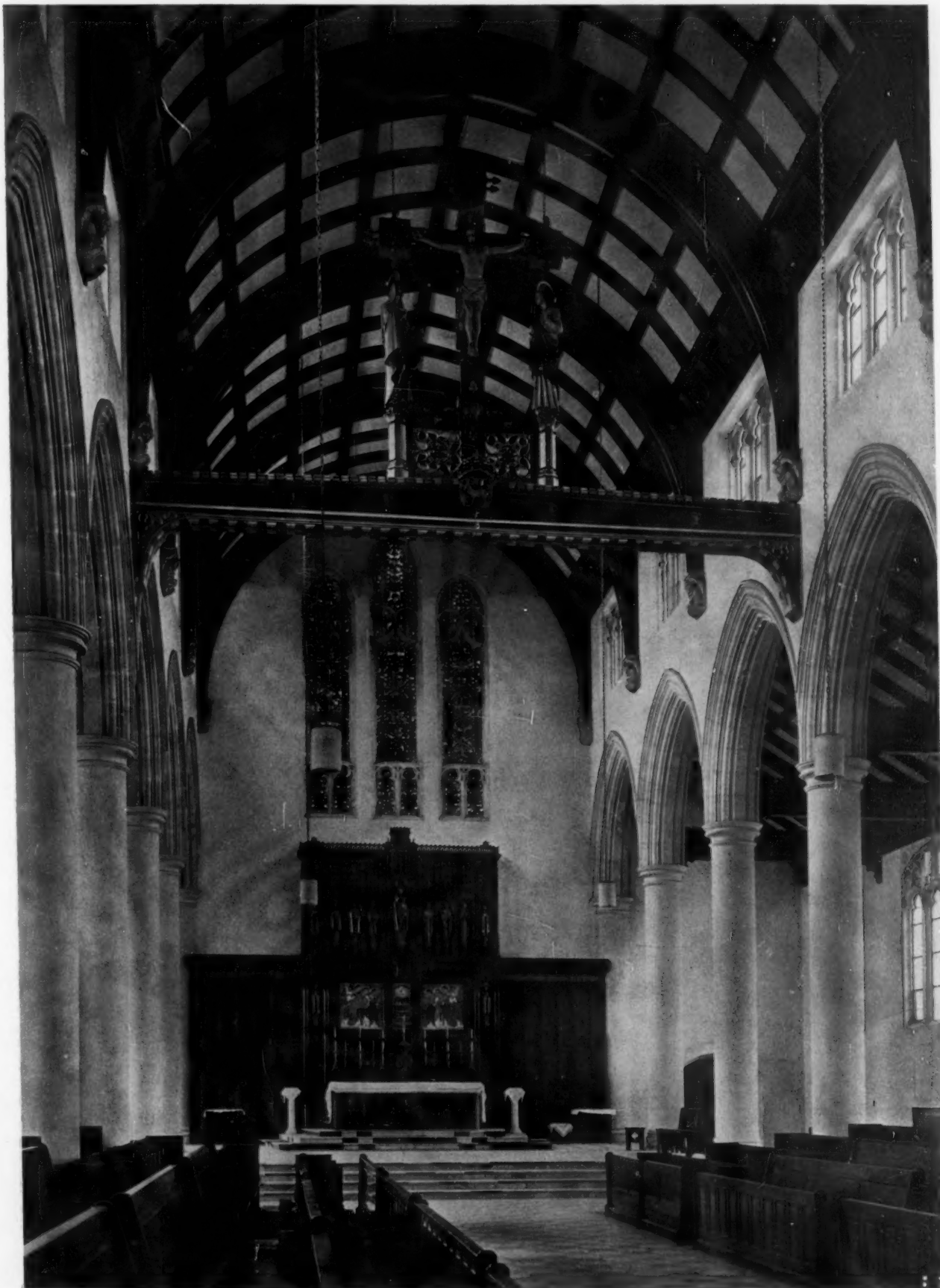
DETAIL OF THEOLOGY WING GABLE

KENRICK SEMINARY, ST. LOUIS, MO.

JOHN T. COMES AND THOMAS F. IMBS, ASSOCIATED ARCHITECTS

11





INTERIOR OF CHAPEL LOOKING TOWARD CHANCEL

KENRICK SEMINARY, ST. LOUIS, MO.

JOHN T. COMES AND THOMAS F. IMBS, ASSOCIATED ARCHITECTS



One arrangement that has been found practicable is to take the total cost and divide it in two equal parts, which will be first and second mortgages, respectively. The first mortgage is held by a financial institution and would be paid off in a period extending over about fifteen years. The second mortgage, held by the employer, would be paid off in instalments extending over a period of about twelve years. These would be reduced to one stipulated amount per year, so the sum the employee would pay would consist of principal and interest all together. This would be reduced by the proportionate amount when the second mortgage had been liquidated.

By carrying suitable fire insurance, the employer becomes fully protected and assured of the return of his entire investment within a period of twelve years, and his employees get the advantage of good homes from the beginning of the arrangement and without any large initial payment.

Various addenda can be made that add to the financial attractiveness to the employee as time goes on. Insurance can be arranged which enables the instalments to be paid during sickness and removes all debt in case of death.

An attempt to give costs per unit of family accommodation in an article of this nature would be misleading, as so many elements enter into its determination, but it is safe to calculate that under normal conditions 20 to 25 per cent of the salary earned will pay the interest on the in-

vestment, taxes, and charges, and also refund the entire capital expenditure in fifteen years.

*Preliminaries in Starting a Housing Development.* Before entering upon a housing improvement it should be understood that all local laws and ordinances must be followed, whether the site be within the town or not, as some day the town may take over the development; also the development should be considered as a part of the general growth of the town and not as a small settlement by itself. A few fundamentals must be determined preferably by consultation between the employer and the expert who will handle the development before any progress can be made.

*First.* The number of operatives it is desirable, or necessary, to accommodate to relieve the pressure sufficiently to enable all to get reasonably good accommodation.

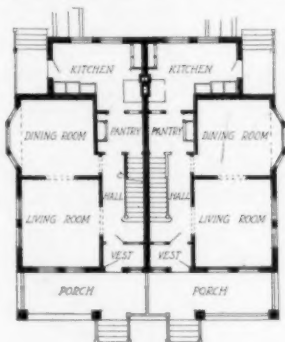
*Second.* The location in which the improvement shall be undertaken.

*Third.* The form the development shall take, — individual, two-family, rows, or multi-family dwellings.

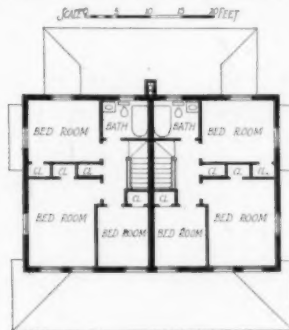
*Fourth.* The funds available, which will determine whether outside financial aid is needed either as separate investment or on a mortgage basis.

*Fifth.* The method of insuring the employees of the firm making the improvement.

To determine these fundamentals all matters should be given careful study, and the decision arrived at



First Floor Plan



Second Floor Plan



Views of Two Double Houses of Different Elevations and Similar Plans, Bridgeport, Conn.

Alfred C. Bossom, Architect



should be based as far as possible upon definite facts and not as frequently has been the case by assuming much which even a little careful investigation would show to be at variance with actual conditions. For instance, under No. 1 an inspection, survey, and record should be prepared of the existing accommodations in use and available, covering details such as price, the number of rooms and rate per room, in which section of town, and the anticipated natural housing growth. This should all be charted to show at a glance in diagrammatic form the existing condition and similarly the anticipated increased number of operatives at the plant. The permanence of the employment of other employees in town must be considered, for the movement of these people automatically would release so much more accommodation.

As to the location, this should be determined after a careful examination of all the available property, and charted with such facts as area price, price per unit, distance from plant and time of transportation, assessments that will have to be paid, etc. The natural drainage and soil should be considered and if on the outskirts of the town, whether the plot has good trees, natural landscape possibilities, and protection from the prevailing winds.

The local tax rates, the improvement of transportation and cost of same, means for the wife to

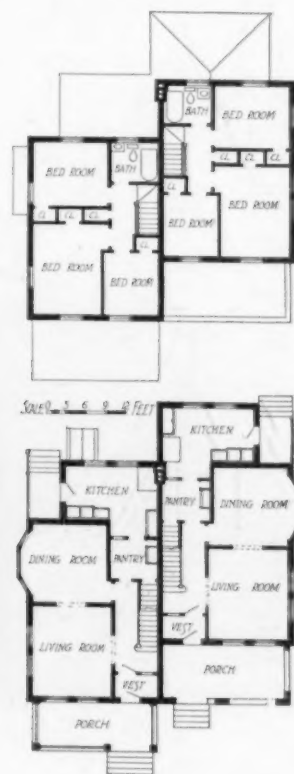
go to market, the children to school, and the family to amusements places should receive their share of attention. It is a mistake to anticipate that trolley lines will be extended should an employer undertake a considerable development, and the author's experience is that all such matters as this must be reduced to definite legal agreements before the improvement be undertaken, as failing this the owner is at the mercy of the local public service corporation who may compel the employer to actually bear the expense of making all such extensions. This applies with equal force to water, gas, electric, and telephone services.

In many cases it is desirable when providing housing facilities to provide stores, and in parts of Europe co-operative enterprises have been encouraged, the employers endeavoring to make the housing developments as attractive as possible from all angles. Further consideration should be given to the different churches, schools, and places of amusement, and the possible future natural growth of the town, and whether adjacent improvements are good or poor, the likely enhancement or otherwise of the real estate value, and also the districts that have to be traversed passing to and from the development. The nearer to the center of the town the development has to be, the more the garden has to disappear and the yard takes its place, and where this is the case the yard must always be paved and any earth left so ar-



General View and Floor Plans of Double House, Bridgeport, Conn.

Alfred C. Bossom, Architect



ranged that it will not spread as mud all over the house and lot to make things appear unsightly.

Where the men have very early work hours the proximity of the housing development to the plant is important and becomes more important in rigorous climates.

Many instances occur where a few existing houses are located upon an available and desirable piece of property. In such cases should this property be selected it is best to move all of the old houses into one corner of the development, doing any repairs or needed changes, and so leave the greater portion of the property free for the best improvement that can be devised under the controlling conditions. This also saves upon insurance, makes for general attractiveness, and avoids inconvenience of having to take care of tenants on the property while making the major improvement.

The monetary value of available land has to be judged in conjunction with the cost per unit of the most desirable form of building; thus three-story buildings in very cheap semi-country property would be preordained to failure, although it would show up very well on paper, and yet under proper conditions of development the same land could be used with immediate and marked success.

In London and Liverpool, and in congested cities like New York and Pittsburgh, five-story tenement "walk-up" buildings have been built with success; but this type of improvement should be undertaken now only after most mature consideration, as the American workman is daily learning to avoid inconvenience, and a strictly American community would most likely refuse to occupy the accommodation provided above the third floor except at a very low rental.

To determine the most desirable form the improvement can take in addition to all the previously enumerated considerations, the value of the available land must be considered; similarly the size of families, for although the average be five persons, with certain nationalities this varies, and the proportion of unmarried varies in different localities. For instance, men without families are always more numerous in new undertakings and these have to be cared for either by the married men or in special barrack hotels built for the purpose.

The usual proportion of unattached men to married is as one to two, but all figures should be carefully checked in the actual locality, for this bears a decided relation to the wages earned by the different grades of men and therefore to the rent that they can afford to pay for their homes.

One-third of the wages is found to be the ultimate maximum that workmen can possibly pay for purchasing the home, taxes, and insurance, and not above 25 per cent for renting.

The result of an exhaustive survey on this subject throughout the country shows that from 10 to 25 per cent only of workers live in well planned and ventilated houses, and these often have features that are very undesirable, and it takes from 16 to 17 per cent of the workers' wages for rent—not instalment purchase—in small towns and from 20 to 25 per cent in large cities, and the intermediate places follow accordingly.

From the author's figures, derived from developments that he has actually carried out, it is plain that multi-family houses within city limits can be built for a much lower figure than a group of two-family houses, both furnishing the same accommodation per family. The cost of the former is about 68 per cent of that of the latter. The land cost per family is still proportionately less again.

Thus the relative value of the land and improvement in relation to the wages paid have a material bearing upon the type of the development.

It must always be kept prominently in the forefront of consideration that a diversified type of improvement is more pleasing than one stamped with too much apparent uniformity, and this does not necessarily increase the construction cost of the component parts if the houses be thoroughly standardized.

A safe return and a conservative investment must be looked for, not a real estate speculation producing abnormal profits. A sinking fund must be created, if the accommodation provided is only rented, to reduce it to its actual real estate value in a number of years, and a fund to cover contingencies if the same be sold. If rented only, long term leases should not be made, or employees leaving the company could still occupy their houses to the detriment of those actually engaged. A reduction system which by periods allows bonuses to apply toward the reduction of the mortgage, provided the employee has continuous employment, and the repurchasing power of the owners on a certain understood basis should the employee leave the employer, are features that are well to introduce into the financial scheme.

By these and similar methods the employee constantly receives advantages for good and continued services, and the owner benefits in having employees better equipped physically and mentally.



GENERAL VIEW OF EXTERIOR



FIRST FLOOR PLAN

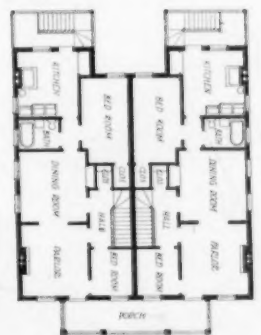
SECOND FLOOR PLAN

GIRLS' DORMITORY, BRIDGEPORT, CONN. HISS &amp; WEEKES, ARCHITECTS

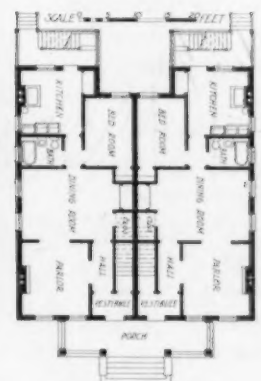


TYPICAL FOUR-FAMILY HOUSE, BRIDGEPORT, CONN.

HISS &amp; WEEKES, ARCHITECTS



SECOND FLOOR PLAN



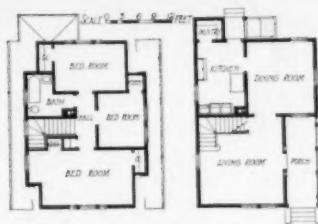
FIRST FLOOR PLAN



## The Remington Housing Development

SINCE the beginning of the war the city of Bridgeport, Conn., has nearly doubled its population, with the result that it has been a difficult matter to house properly the newly arrived and constantly arriving workmen and their families. To meet these conditions in part, the Remington Arms Union Metallic Cart-ridge Company began, a little more than a year ago, the development of a housing scheme for their employees. Already houses have been built on two sides of three new streets, and the general character of these houses is shown in the accompanying illustrations. The initial part of the work was carried out under the direction of Alfred C. Bosson, architect; but the later developments have been under the direction of Hiss & Weekes, architects. In the beginning the need for houses was so urgent that little time could be given to a careful study of all details. Nevertheless, that portion of the work which has been completed seems to meet the needs adequately and will serve as a nucleus for the larger development in contemplation.

It is obvious that every industrial group has its own peculiar conditions, which must be dealt with, and the need for understanding these conditions is important. In a work of this nature it is essential to give due consideration to the different racial divisions, their religious inclinations, and other important characteristics. These conditions were all given careful thought



Front View and Floor Plans of Single Frame House, Bridgeport, Conn.  
Hiss & Weekes, Architects

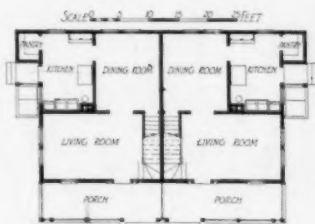
by the management of the Remington Company and their assistants, and the indications are that the problems involved have been very successfully solved.

Nearly all of the houses are either of burnt-clay or concrete construction with roofs of slate. Materials were bought in large quantities and the houses erected under competent supervision, and this resulted in keeping the costs down.

The interior woodwork is of cypress, finished with varnish. The floors throughout are of long-leaf yellow pine, scraped and shellacked. All houses have modern plumbing and bathrooms and are equipped with a good grade of fixtures. The floors of the bathrooms are of ceramic tile with sanitary glazed base. Each bathroom has a medicine cabinet. Sewage and water supply lines were laid by the company and will later become a part of the Bridgeport system. Electric current is furnished by the city and each room has ample lighting fixtures. The kitchens have cabinets and provision for gas ranges. Heating is by the hot air system. There are brick firewalls between houses built *en bloc*.

The rentals charged were determined by the salaries paid, and the total cost of each house was made to conform to a figure which would permit of a rental approximately the amount of

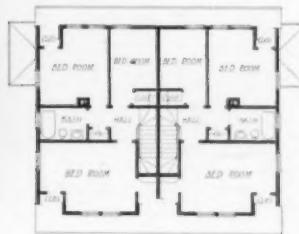
the weekly wage. Naturally the houses provided for the skilled mechanic are of a better type than those provided for the un-



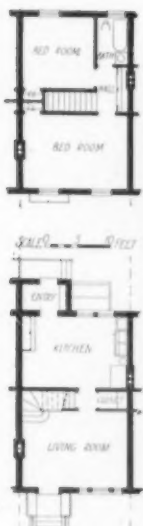
First Floor Plan



Double Frame House, Bridgeport, Conn.  
Hiss & Weekes, Architects



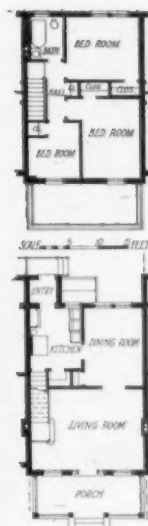
Second Floor Plan



Floor Plans  
Intermediate  
Houses



Group of Eleven Houses, Bridgeport, Conn.  
Hiss & Weekes, Architects



Floor Plan  
Center House

skilled. The houses are rented or sold according to the inclination of the tenant. A Building Loan Association provides the necessary assistance to any of the employees wishing to invest.

The best renting cottages are those with the smallest number of rooms, and consequently lower rentals. Experience in this development would seem to recommend six rooms as the maximum, although houses with four or five rooms and bath are more desirable for the average family.

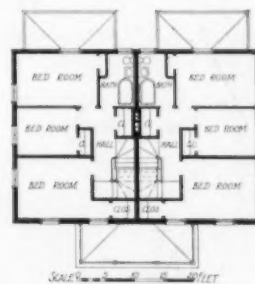
The Remington Company employs a considerable number of girls, and to provide for them three large dormitories have been erected, each accom-

modating about one hundred and thirty-five girls. Separate rooms may be had for \$1.75 to \$3.00 per week. Each dormitory has a restaurant in the basement which furnishes breakfast, luncheon, and dinner at a nominal cost. Six dollars per week is the average cost for room, table board, and other service required. In addition there are laundries, rest rooms, rooms for entertaining, bathing, and other facilities.

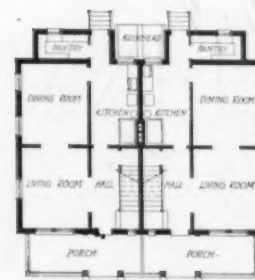
A further development of this undertaking will provide for the social and welfare aspect of the problem in a clubhouse, general restaurant building, athletic field, parks, and planting.



Typical Double House, Bridgeport, Conn.  
Hiss & Weekes, Architects



Second Floor Plan



First Floor Plan



## PLATE DESCRIPTION

✓ CONVENT AND ACADEMY OF NOTRE DAME, FENWAY, BOSTON, MASS. PLATES 17-23. This building is devoted to two different purposes and is organically divided in two portions, one being devoted to the academy and the remaining half to the convent. In plan, the building resembles the capital letter E. The first floor is given a stately approach from the Riverway through a large vaulted porch. The entrance corridor is 16 feet wide and on its axis is placed the chapel. The academy side of the second floor is devoted exclusively to class rooms and laboratories, the corresponding level of the other side of the building being given over to the sisters' dormitories. The chaplain's quarters are situated toward the rear of the chapel over the sacristies and accessible only from them. The chief feature of the academy on the third floor is the great music hall, which is provided with 24 independent apartments for individual practice. The interior arrangement was determined by the clients, and this had to be rigidly respected so that the working out of the exterior design was the subject of a great deal of study. The variety of mass and skyline which the architects have incorporated has been unusually successful in giving so large a building an element of picturesqueness; equal success was had in giving exterior expression to the two elements of the plan,—the convent and the academy.

✓ ST. BRIGID'S ROMAN CATHOLIC CHURCH, WESTBURY, L. I., N. Y. PLATES 24-27. This interesting stone church which is so appropriate to its location is derived in design from early English Gothic and Norman precedents. The walls are constructed of rubble stone obtained from the New York subway excavations. The trim, both exterior and interior, is cast artificial stone. The roof is of blue black slate graduated in thickness and exposure. The interior has a seating capacity of 600 people. It is finished in rough plaster which with the open timbered roof, decorated with bright spots of color, and the generously dimensioned piers and columns, give the effect of the smaller English parish churches. The altar is temporary. The carved and painted wood cross, which is a feature of the chancel, was donated by the architect. Aisle and chancel floors are tiled.

CHURCH OF THE BLESSED SACRAMENT, JAMAICA PLAIN, MASS. PLATES 32-34. This church is of the Latin cross type of plan and has an interior length of 180 feet and a width of 90 feet across the transepts, with a seating capacity of almost 1100. The nave is flanked by side aisles, which are con-

tinued, as an ambulatory, around the sanctuary, forming a distinctive feature of the interior. The high altar, with its baldachin, is a notable piece of wood carving. The feature of the interior is the richly ornamented barrel vault, which forms the ceiling, except at the crossing where the dome strikes the dominant note. The design has been consistently carried out in the Roman Renaissance style in brick with marble columns and panels. At the left of the front of the church is the octagonal baptistery, with domed ceiling, separated from the main church by wrought-iron gates and forming an interesting adjunct of the exterior.

ST. MATTHEW'S ROMAN CATHOLIC CHURCH, DORCHESTER, MASS. PLATES 35, 36. The plan is derived from the early Roman basilicas, having nave and aisles, the sanctuary being in the form of an apse. The main façade is marked by massiveness and simplicity of composition. The church is connected with the rectory by an arcaded cloister, midway in which is the baptistery. The interior, which is 52 feet in height, is treated with a segmental vaulted ceiling carried on large piers treated with Ionic pilasters, with a subsidiary Roman Doric order with ornamented entablature marking the side aisles. The chapel seats 42 people and the main church about 1000 people.

✓ ST. EDWARD'S ROMAN CATHOLIC CHURCH, BROCKTON, MASS. PLATES 37-39. This building is a free rendering of the early English Gothic, the distinguishing characteristic of which is the slender lancet window arranged in interesting groups. The design is clothed in an extremely pleasing tone of gray brick, the openings being trimmed with artificial stone of a lighter value. The main approach to the church is through a central porch, the aisle entrances being in subordinate relation, but so placed as to be on the axis of the side passages. The roof is of black slate with copper ridges. The auditorium is divided in the customary manner and has a seating capacity of 1050. Slightly projecting transepts give an interesting effect in the interior and this is enhanced by a deep sanctuary. The aisle windows are arranged in triple panels; no woodwork is used for the frames, the glass being set in the stone jambs. The columns or piers are without capitals, the mouldings of the arches dying into the body of the shaft, imparting a fluid quality to the architectural lines. No window opening whatever is pierced in the chancel wall, the light comes from the sides, and the wall is treated as a great reredos.



## EDITORIAL COMMENT

THE succession of epochs in the history of mankind may be clearly traced through the course of architectural development; each important period in the world's history is paralleled by a corresponding period in architecture. The breaking down of barriers between races and nationalities in the past has led to a constantly increasing knowledge and appreciation of foreign arts, till to-day in American buildings there may be seen evidences of the architecture of nearly every civilized country.

The diverse forms and cosmopolitan character of America's architecture are not due however, primarily, to political conditions, because during our national existence we have experienced no period of advancement or decline of sufficient importance to influence our art seriously; rather are they due to the many opportunities for study of all art offered to architects and laymen alike through foreign travel, technical education, and architectural books and papers now so widely circulated.

The present European struggle in which we are becoming more active each day is an event of world-wide as well as national importance and will probably bring about greater political and economic changes in the countries involved than any previous war in modern times. Because of the generally recognized fact that future events may be forecast from a study of effects produced in the past under similar conditions, it is only reasonable to expect that an event of such importance as this war will be reflected in the lives, manners, and art of the present and succeeding generations.

One of the certain effects on our architecture will be an even broader appreciation of European art than we have to-day. The inevitable interest which the nation as a whole will take in its allies will awaken a desire to know more of their lives and customs, making it easy for us to absorb the best of their ideas and adapt them to our own use. Foreign travel has always been considered a desirable aid in developing the art instinct and of special value to the architect. In the days of the Renaissance the great master architects were invariably those who had given much study to the art of foreign countries. In modern times, with the great increase in the number of men in the profession, the proportion of those that have studied outside their own country has greatly decreased, but what many could not do for themselves the war is now doing. Architects and draftsmen who are enlisted in the service will have an opportunity of observing the architec-

ture of other countries than their own; they will live among works of architecture of both the simplest and most imposing natures, and will be able to study them in their native atmosphere and surroundings, to an extent far beyond comparison with any other method. These men upon returning home will have a greatly widened view of their profession and their consequent increased abilities will not fail to impress themselves on American architecture.

An effect of greater importance if possible than a widened appreciation of all architectural forms will undoubtedly result from economic conditions. With the greatly increased demand for steel and other products ordinarily used in building for war purposes, prices have reached figures which are nearly prohibitive for many types of structure. This condition presents a serious problem to architects, but at the same time it affords the profession a splendid opportunity to perform a distinct service in creating new types of construction in which only the minimum of the products required by the government will be used. The ingenuity of the American architect is capable of meeting the situation. It may not be possible to evolve new methods at once; they will in all probability develop from greater or less changes in our present systems; the change, however, must come if the pressing needs for building of all types which will soon be felt are to be supplied at a cost warranting investment of funds.

THE Royal Gold Medal for Architecture, given by His Majesty the King of England, was recently conferred upon M. Henri Paul Nénot, the noted French architect. In making the presentation address Mr. Ernest Newton, President of the Royal Institute of British Architects, gave expression to the co-operative spirit which the war is bringing about when he remarked, "I can only regret that it is not my pleasant duty to-day to decorate, as well as M. Nénot, a distinguished architect representative of the other allies."

IN order to give sufficient opportunity of illustrating in one issue recent Roman Catholic Church work, we have postponed the publication of the second and concluding paper on "One-Story and Open-Air Schoolhouses in California," by Mr. William C. Hays, to our September issue. For the same reason we have omitted the plates of measured drawings on early American Architectural Details, but their publication will be resumed with the following numbers.